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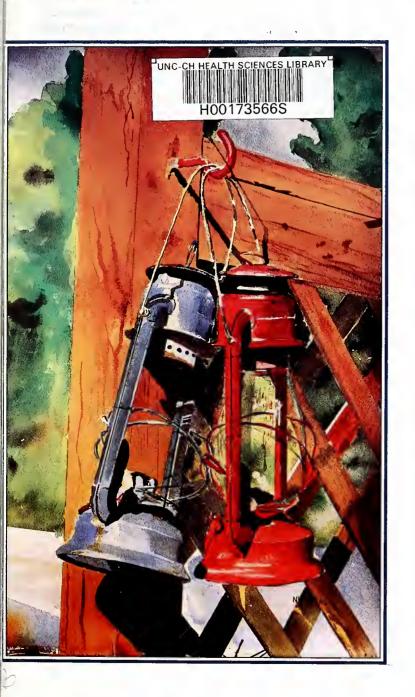


The
Official Journal
of the
North Carolina
Medical Society
June 1994
Jolume 55
Jumber 6

North Carolina Medical Journal

For Doctors and their Patients

JUN - 8 1994



Some light for vexing subjects:

Getting Patients to Quit Smoking

The Paradox of Perfect Practice

Screening for HIV

Who Needs Health Care Reform—and Why

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NORTH CAROLINA MEDICAL JOURNAL

For Doctors and their Patients

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SCREENING FOR DISEASE

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Manuscript Preparation

Prepare papers according to the "Uniform Requirements for Manuscripts Submitted to Biomedical Journals" (N Engl J Med 1991;324:424-8) with the following exceptions: 1) no abstract is needed; 2) no running title is needed; and 3) report measurements in metric units; use of the International System of Units (SI) is optional.

Submit a cover letter and either a 3 1/2-inch hard disk or 5 1/4-inch floppy computer disk that contains the text written in MS DOS compatible format (WordPerfect, Microsoft Word, Displaywrite, or ASCII), and at least one hard copy of the text. (No disks are necessary for Letters to the Editor unless particularly lengthy.) Make sure text is double-spaced, with one-inch margins, typed on one side of each sheet of paper. Title page should include addresses, and telephone and facsimile numbers of the corresponding author.

Submit illustrations, in duplicate, in the form of highquality color 35mm slides or 5-by-7-inch or 8-by-10-inch glossy photographs, or as black-and-white glossy prints (5by-7-inch or 8-by-10-inch). Label all illustrations with author's name, number them sequentially according to their position in the text, and indicate the orientation of the images, if necessary. Do not write directly on the backs of prints. This can damage them. If figures require printing in four-color process, the author may be asked to pay printing fees or a portion thereof.

Type figure legends, double-spaced, on a separate sheet of paper. Tables should be typed, double-spaced, one to a single sheet of paper. All tables must have titles and consecutive Arabic numbers. Include tables, graphs, or charts on disk, if possible.

Keep references to a minimum (no more than 15, preferably 10 or fewer), retaining those that document important points. The "Uniform Requirements" cited above contain the format for references. Authors are responsible for the accuracy and pertinence of all citations.

Avoid abbreviations entirely if possible; keep them to a minimum if not. When used, completely define abbreviations at the first point of usage in the text.

Manuscript Review and Editing

A medically qualified editor reads all manuscripts and, in most instances, sends them out for further review by one or more other members of the North Carolina Medical Society. Authors' cover letters should include a line that states that their submitted manuscripts are not under consideration for publication elsewhere. Decisions to publish or not are made by the editors, advised by the peer reviewers.

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Letters to the Editor



A Pebble in the Pond...

To the Editor:

When I think of being managed and being competitive, I wonder about the goals of medicine. We older folks have enjoyed "the art" and creating the "best" care for our patients. It now appears that "best" will be defined in economic terms alone. The following is a case in point:

Recently a student friend asked if I would be willing to take on the care of his parents who had retired and were moving into the area from the North. I agreed to do so, and my secretary arranged for a get-acquainted visit. I asked that records be sent to confirm that there were no emergent medical problems.

Before any records arrived, the wife called asking that I refer her husband to a psychologist because he "was depressed over his retirement and had been seeing a psychologist" in his prior community. The wife told me that this was an ongoing, non-emergent situation that she did not want to have deteriorate. She did not feel that it was important that I see him, and she was sure that a psychologist would be able to help. My input was important only because they were insured by the Personal Care Plan (PCP), which required my referral.

I asked my secretary to find out what psychologists were available under the PCP so that I could refer. Her investigation revealed that these services were covered only through the Achievement and Guidance Center of America (AGCA), which could be called toll free.

Clearly, the AGCA has organized a number of psychologists (nameless, possibly underemployed, certainly willing to provide services at a discount). Also, clearly, these are "generic" psychologists—i.e., not matched by me to fit best with the patient. Clearly, the AGCA organizers extract a premium from the system.

Ultimately, I guess we will all be organized into "generic" functions, recompensed by organizations that compete by providing lowest level services at the lowest rate.

James A. Bryan, II, MD UNC Department of Medicine Division of General Medicine and Clinical Epidemiology CB# 7005, Old Clinic Building Chapel Hill, NC 27599-7005 ...the Ripples

From the Editor:

It seems crazy, the way things get strung together. I mean like Newton and Leibnitz inventing the calculus simultaneously. Or, as John Knowles once said, how you can read about some disease and—next week—there is a case of it in your own examining room.

Take what happened a week ago. I am looking up a reference in last year's JAMA. As I flip through the pages, I come (by Serendipity, my guide) across something I am not in search of. It is "The Bottom Line," a Piece of My Mind by Naomi Bluestone, MD, MPH (JAMA 1993;269:2580). Dr. Bluestone (as I learn when I call her) is a "semi-retired psychiatrist" eking out an existence at the end of a dirt road in Center Barnstead, New Hampshire (near Lake Winnipesaukee, she says, if that helps). Life in medicine has changed as we all know, the psychiatrists' along with the rest of us. But Dr. Bluestone's piece is not about psychiatry as much as it is about doctoring in the broadest sense. It has, to me, the ring of truth.

Dr. Bluestone says that "our health care mess began not with the advent of space-age technology but when intimacy in the physician-patient relationship became a dispensable item." Imagine someone talking today, shameless and proud, about "intimacy" between doctor and patient. And "the protective arms of a trusting relationship..." Or the "desire for a relatively timeless and private communion that enables the free-flow outpouring of suffering..." Do you ever hear words like that from the "Units of Service" people? The productivity and through-put people? The myrmidons of the Bottom Line that surround us these days?

Then our friend, Jim Bryan, sends his letter. Oil of vitriol, Chapel Hill vintage. I love it, but my head spins. The correspondence of Bluestone and Bryan intersecting. These concatenations strike me as omens, like meteors or eagles in the sky. Do they mean that we will quietly watch the sacrifice of Medicine on the altar of Health Administration and Good Intentions? Abandon our timeless notions of service to and understanding of the sick? Become mere minions of "Healthcorps and Medipoop?" For, as Dr. Bluestone says, "when good people opt out, what good is universal access? Access to what?"

Francis A. Neelon, MD

Screening Physicians for HIV Not Cost-Effective

To the Editor:

The subject of HIV testing among health care professionals is an emotional one. Much of the emotionalism results from public misperception and misinformation. The article "Screening for HIV in Physicians: Who Should We Test and What Will It Cost," (NC Med J 1994; 55:136-40) was somewhat disconcerting to me because: 1) It reduces the question of testing among physicians to essentially a risk/cost analysis, and 2) it fails to deal with the true issue, which is *not* HIV positive rates among physicians but rather the rate of HIV transmission to patients from HIV-positive physicians.

As a physician who follows the Centers for Disease Control guidelines for personal testing, I think such discussions are not helpful and are misleading. To quote the American College of Surgeons' "Statement on the Surgeon and HIV Infection:" "to date there have been no documented incidences of transmission of HIV from a surgeon to a patient and no transmission of the virus to a patient in a sterile operating room environment. This area has been investigated carefully, and despite testing of thousands of patients of HIV-infected surgeons, no evidence of transmission has been found...."

"The only identified HIV transmission from a health care worker to a patient occurred in a dentist's office in Florida. Although not conclusively proven, it almost certainly occurred from contaminated instruments that were not adequately disinfected and sterilized between patient visits."

According to this document, even the CDC guidelines for physician testing "ignored the overwhelming testimony of the scientific community and the fact that all currently available data indicate [that] transmission from provider to patient in a hospital setting is so far a purely hypothetical event."

The proper cost/risk analysis to perform would be the cost to detect HIV in health care providers divided by the number of transmissions to their patients, which at present is zero. Therefore, until transmission occurs from HIV-positive health care workers to their patients, it will not be cost-effective to perform HIV testing on physicians in any risk group category.

> Joseph W. Mulcahy, MD Four County Surgical Associates Vance Medical Arts Bldg, No. 203 1912 Ruin Creek Road Henderson, NC 27536

Forensic Pathology Automatically Exposure-Prone To the Editor:

I was surprised to read in "Screening for HIV in Physicians: Who Should We Test and What Will It Cost," (NC Med J 1994;55:136-40) that forensic pathology is regarded as having a low incidence of exposure-prone procedures. This news will comfort me as I perform my next examination on an IV drug-abusing, crack-smoking prostitute found dead in an alley, an itinerant drug peddler from New York City with multiple gunshot wounds, or one of the routine examinations we perform on every North Carolina prison or jail inmate who dies.

Forensic pathologists perform autopsies on populations preselected for high risk. There is no prescreening, and we cannot refuse to do an examination on the basis of HIV status. I do not know how many of the consensus panel have attended an autopsy recently, but is there any other procedure in medicine that is more invasive or involves more contact with blood? Sharp knives, scalpels, and needles are used; the prosector is exposed to jagged bone, and, at times, glass and foreign metal objects including non-physician friendly projectiles such as the Black Talon bullet are involved.

I thus take exception to the suggestion that forensic pathologists, or any pathologist who performs medico-legal autopsies, has a low likelihood of exposure. I would, however, agree that we have an extremely low risk of transferring HIV to patients since we don't do these high-risk procedures on living individuals. For that reason, I believe that, if our objective is to protect patients, it would not be cost-effective to screen forensic pathologists.

John D. Butts, MD Chief Medical Examiner NC DEHNR—Div. of Postmortem Medicolegal Examination Chapel Hill, NC 27599-7580

Selective Behavior, Selective Care To the Editor:

I have been interested in media reports about our sociomedical problems—lack of hospital insurance, decreased accessibility to physicians, and limited insurability due to a positive family history or a newly acquired disease. One also hears much about who should receive medical care, including the idea of reduced or coverage for alcohol or drug users since their medical problems were "self-imposed." At the same time, we omit other self-imposed problems such as HIV infection from sex or needles, or lung cancers from smoking.

The insurance industry and its policies are frequently blamed. I don't argue with the criticisms being published, but ask the question: If the current industry behavior is so bad and is creating such huge problems, why did the legislators not anticipate such problems when they wrote the original entitlement legislation? Or now, after recognizing the problems, why have they failed to attempt any corrective legislation? With the exception of "caps," very little has been done.

Granted, community morals change with time (look at prohibition, abortion, and homosexuality). But have our morals shifted enough that we should criticize those who are behaving within legal constraints as though their behavior was criminally negligent? The criticized behavior of the insurance industry is determined by local legislation; changing it could be accomplished whenever legislators believe that changes are needed.

I submit this as an argument to initiate and promote negotiated solutions rather than accept mandated, untested programs, which may be less useful than what are now legislatively permitted.

H. William Gillen, MD 2038 Trinity Ave. Wilmington, NC 28405

Continued on page 236

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Screening for HIV Infection

The Time Has Not Yet Come

Jeffrey G. Wong, MD, and John R. Feussner, MD

"John, a 31-year-old newspaperman, comes in for a 'physical examination.' He has been in good health most of his life. He had his tonsils removed as a child and his appendix removed emergently in his early 20s. He has never been hospitalized, takes no medications regularly, and has no known allergies. He is single, is 'moderately' sexually active (exclusively heterosexual) and says he usually practices 'safe sex.' He has never had blood transfusions and, although he 'smoked a little in college,' no longer smokes or uses any non-prescription drugs. He tends bar at night to earn a little extra spending money and has heard several of the regulars at his bar talking about the AIDS virus; some of them know people who have tested positive for HIV. He wonders whether or not he ought to be tested for HIV."

44 years old—the prime, productive years

of one's life. In 1991, 74% of the 29,850

Americans who died of AIDS were be-

tween 25-44 years old;1 AIDS is the sec-

ond leading cause of death for men and

the sixth leading cause of death for women

in this age group.2 The death rate for HIV

infection has steadily increased at a time

when the rates for most other leading

causes of death have declined or remained

relatively stable. Current projections suggest that these trends will continue.

cases, the asymptomatic carriers of the

virus who nevertheless pose a risk of infection for John. More than 1.5 million

Americans are presently infected with

the HIV-I virus, and the World Health

Organization (WHO) projects that 30-40

million people will be infected world-

Beyond AIDS itself are the future

What should you tell John? How significant is his risk of having asymptomatic HIV (Human Immunodeficiency Virus) infection and of developing AIDS (Acquired Immuno-Deficiency Syndrome) in the future? Using our six guidelines (NC Med J 1993;54:218-21), we will formulate a recommendation for him, reviewing each guideline individually and embarking on a general discussion regarding HIV screening.

Target Disease Considerations

1. Is the disease common or serious enough to warrant screening?

Probably yes. The number of deaths/year due to AIDS is relatively small compared to, say, heart disease or cancer, but most deaths due to AIDS occur in persons 25-

2. Is there a pre-symptomatic phase in the natural history of the disease during which time a test can detect it?

wide by the year 2000.2

Yes. Initial infection with HIV is usually asymptomatic. Sometimes there is an

acute, mononucleosis-like illness with fever, pharyngitis, fatigue, myalgias, and headache. Such acute illness is more the exception than the rule.

Within two weeks after infection, and for several weeks thereafter, viral proteins can be found in circulating blood. Antibodies develop to these circulating proteins, usually one to three months after the initial infection although in some patients it takes considerably longer before antibodies are formed. "Early" phase H1V infection can be detected by measuring serum antibodies against H1V. Characteristically, the total number of CD-4 T-lymphocytes (the cells necessary for effectively combating tissue-based infections) is >500-600 cells/mm³ but less than the normal range of about 1200.

As the HIV infection progresses, persistent generalized lymphadenopathy, weight loss, unexplained fever, and dermatologic manifestations (including Kaposi's sarcoma, seborrheic dermatitis, or mucous membrane infection such as oral thrush) may be seen.³ During this "middle" stage, most HIV-infected indi-

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viduals seek medical attention. Also during this stage, the numbers of CD-4 T-lymphocytes fall indicating failing immune function. This "middle" stage of the illness is also called ARC (AIDS-Related Complex), and is seen prior to the onset of "full-blown AIDS."

3. Are there effective treatments for the disease available to use after early detection?

Perhaps. Once HIV infection progresses to AIDS, the three-year mortality rate is greater than 90%.⁴ Efforts to identify treatments that will delay or reverse the progression of HIV infection are continuing, but to date none have been found. In addition, there have been no studies of treatment during "early" stage asymptomatic HIV infection.

The AIDS Clinical Trials Groups of the National Institute of Allergy and Infectious Disease have carried out a controlled trial of zidovudine (AZT) in asymptomatic HIV-infected patients who had CD-4 T-lymphocyte counts <500/ mm³. Study patients meeting inclusion criteria (n=1,338) were randomly assigned to one of three groups: a placebo group (n=428), a group receiving 500 mg of AZT/day (n=453), or a group receiving $1,500 \,\mathrm{mg}$ of AZT/day (n=457). Study end points were the development of AIDS or advanced ARC. The authors found that HIV-infected patients receiving placebo progressed to AIDS at a higher rate than those receiving AZT.5 This was the first trial to suggest that AZT may be helpful in asymptomatic HIV infection, but there were a number of problems with the study that weaken its conclusions (including the fact that 31% of participants dropped out or were lost to follow-up).

Other trials have used AZT in patients with *symptomatic* HIV infection. In 1987, the AZT Collaborative Working Group compared AZT to placebo in 282 patients with AIDS. The trial was stopped soon after it started when it was discovered that of the 20 deaths, 19 were in the placebo group and only 1 in the AZT group. Results from this short (24-week) trial suggested that AZT delayed death from AIDS.

The AIDS Clinical Trials Groups

performed a double-blind, randomized trial in 711 patients with "mildly symptomatic HIV infection" randomized to receive either placebo (n=351) or 800 mg of AZT/day (n=360). Participants were followed for about 11 months. There were 51 clinical events (progression to AIDS or death)—36 in the placebo group and 15 in the AZT group. The difference was statistically significant and the authors concluded that AZT delayed the progression to AIDS with minimal toxicity or side effects.⁷

Recently, the Veterans Affairs Cooperative Study Group on AIDS Treatment compared early versus late treatment with AZT in symptomatic HIV infection. Patients were randomized by CD-4 T-lymphocyte count; a count of 200-500/mm3 was considered "early infection" and a count <200/mm,3 "late infection." The AZT dose began at 1,500 mg/ day and was adjusted as medically indicated throughout the study. Patients were followed for more than two years or until progression to AIDS or death. Interestingly, this study showed that treatment with AZT delayed the progression to AIDS, but there was no improvement in overall survival. The long-term use of AZT did produce significant side effects.8

Finally, the Concorde study was recently published. This trial has the largest number of patients to date (n=1,749) and the longest average follow-up time (average 3.3 years). Patients were randomized into two groups: the *Imm* group (n=877 patients) received 1 gram/day of AZT immediately upon diagnosis of asymptomatic HIV infection; and the *Def* group (n=872 patients) had administration of AZT deferred until the onset of AIDS or symptoms of the AIDS-Related Complex. There was no difference in clinical outcomes between the two therapeutic policies.

Screening Test Considerations

1. Are there screening tests with acceptable accuracy available to detect the target disease?

Yes, but... Two tests are used to screen for

HIV infection. The ELISA test is an immunological assay that measures antibodies to viral proteins in the patient's scrum. It is widely used as the initial screening test. The sensitivity of ELISA has been estimated using samples of blood from donors. Sensitivity has been excellent though false positive results do occur. 10,11

When a positive ELISA reaction is found repeatedly, a confirmatory test called the Western Blot is used. The specificity of the Western Blot has been reported at 97.8%. ¹² The combination of a repeatedly positive ELISA test and a positive Western Blot test gives a sensitivity exceeding 99%! ¹⁰ The specificity of the ELISA test (specificity = 99% ¹⁰) and the Western Blot are both generally excellent

Early in the course of disease, some patients test falsely negative. As mentioned previously, it may take several months to develop antibodies against circulating viral proteins. The time period between the initial infection and the production of antibodies is called the "serologic window." During this time, a patient infected with HIV has negative screening tests.³

Unfortunately, HIV testing may not always be either positive or negative. Western Blot tests are sometimes "indeterminate" which makes interpretation difficult. The Western Blot test detects antibodies to specific viral protein antigens. The test is interpreted as positive if antibodies are present to one of the viral core proteins (HIV p24) and two viral envelope proteins (HIV gp41, gp120). lt is negative if no antibody-antigen bands are seen. If one or more bands not meeting the positive criteria are present, the test is "indeterminate." Indeterminate Western Blot tests (IWBs) may occur in the presence of other medical conditions or auto-antibodies may produce crossreactivity. For example, patients with systemic lupus erythematosus, other nonlupus patients with a positive anti-nuclear antibody test, rheumatoid arthritis, Hashimoto's thyroiditis, multiple pregnancies, or a recent tetanus booster occasionally have IWBs.13

In addition to the problems encoun-

tered with IWBs, the predictive value of a positive test in the usual-risk population is low. Because the prevalence of HIV infection in the general population is low, positive results (even using tests with excellent sensitivity and specificity) are likely to be false positives. In such a population, the proportion of tests that are truly positive for HIV infection is small (Table 1). It is estimated that about 0.5% of the US population is infected with HIV.2 Even when our screening tests perform with 99% sensitivity and 99% specificity, the results are worrisome. Of 100,000 people screened, 500 will have HIV infection; 495 of the 500 will have positive screening tests (sensitivity = 99%). We will, however, get 995 (false) positive HIV tests in people who are not infected with HIV (specificity = 99%). This gives a positive predictive value of only 33% (495 true positives out of 1,490 total positives). For every three patients called "HIV positive," two are falsely positive! With an emotionally charged issue such as HIV infection, the difficulties created by false positive rates are enormous,14

In populations with a higher prevalence of HIV infection, the predictive value of a positive test is greatly improved. A cooperative study in 20 US hospitals that screened blood samples from admitted patients found prevalence rates ranging from 0.2% to 14.2%. Assuming a mid-range prevalence rate of 10% and test sensitivity and specificity of 99%, the predictive value of a positive test in this population would be nearly 92% (Table 2).

In summary, the screening tests available for the detection of HIV infection have excellent operating characteristics and when applied to a high-risk population where HIV is prevalent, the results may be useful.

2. Can an appropriate population of high-risk patients be identified to undergo screening?

Probably yes. Epidemiological investigations have identified populations at high risk for contracting HIV. Intravenous drug use, homosexual and heterosexual promiscuity, promiscuity by one's sexual

Table 1 HIV Screening

(Test characteristics with 99% Sensitivity and 99% Specificity)

Prevelence of Disease in Population = 0.5%

	Pos HIV Infectio	n	•	No HIV Infection	
Teet positive	495	Α	В	995	1490
		С	D		
Test Negative	5			98505	98510
	500			99500 -	100000

Sensitivity = 495/500 = 99% Specificity = 98505/99500 = 99% Predictive Value of a Positive Test = 495/1490 = 33%

Table 2
HIV Screening

(Test characteristics with 99% Sensitivity and 99% Specificity)

Prevalence of Disease in Population = 10%

	Pos HIV Infect	lon	N	o HIV Intection	_	
Test positive	99			9	10	8
		Α	В			
-		С	D			
Test Negative	1			891	892	2
'	100			900	100	0

Sensitivity = 99/100 = 99% Specificity = 891/900 = 99% Predictive Value of a Positive Test = 99/108 = 92% partner, or a history of blood transfusion between 1978 and 1985 place people at higher risk for contracting HIV infection. The magnitude of increase in risk has not yet been quantified. The risk of infection can be mitigated by practicing "safe sex" (properly using condoms during intercourse) and by sterilizing needles before intravenous injection. Efforts to control the spread of HIV infection by promoting these two activities have been successful incertain populations. As with many other diseases, prevention is far more effective than treatment.

3. Do the benefits of screening justify the costs of the screening strategy?

Who knows? The public health issues surrounding benefits and costs of screening for this disease are far more complex than with the cancer screening questions we addressed in previous papers. In one cost-effectiveness analysis, McCarthy and colleagues concluded that screening should be offered to all persons in defined populations with high seroprevalence.17 For an individual patient, data are not yet available to demonstrate that screening improves survival. Early treatment might prolong the asymptomatic period for patients with this disease,5 thereby improving the quality of life. Alternatively, an asymptomatic patient with a positive HIV screening test may not experience an improved quality of life. Drug side effects may actually diminish quality in such asymptomatic patients.

Unfortunately, significant societal stigmata are attached to patients with HIV infection. These stigmata can result in ostracism or frank discrimination in schools, in the workplace, and even within the health care system. Insurance companies have canceled policies of patients

reported to be HIV positive, even those who are later demonstrated to have had false positive tests. The culmination of all of these issues may lead to withdrawal from society, depression, and in the extreme case, even suicide.

Proponents of screening programs argue that knowledge of one's HIV status is important for modifying behaviors that might spread HIV. Some studies have shown that subjects who learned of their HIV status through screening did change their high-risk behaviors. ^{18,19} In other studies, the report that one is "HIV negative" led to *more* high-risk behavior than before! ²⁰ Patients who were HIV positive and asymptomatic have been less likely than symptomatic patients to disclose their HIV status to intimate partners. ²¹

In a pragmatic sense, efforts to prevent HIV infection seem more likely to control its spread than attempts to halt its spread by early detection of existing infection. Educating the public to avoid risky behaviors is a practical approach that does not require knowledge of a person's HIV status.

For society as a whole, the benefits of screening certain populations for HIV have been considered. Targeted groups include pregnant women (because of vertical transmission of HIV from mother to fetus), recently parous women (because of HIV transmission through breast milk), all patients admitted to the hospital (because of the potential risk to health care workers), all military recruits, immigrants, incarcerated populations, and people filing marriage certificates. Recently, the Centers for Disease Control published recommendations aimed at preventing the transmission of HIV from health care workers to unsuspecting patients.22 In a recent article in the Journal, Lewis and

Sandler²³ evaluated the implications of screening physicians who perform highrisk procedures. They estimated an HIV infection prevalence of 0.05% (I in 2,000) in the 10,000 physicians in North Carolina and calculated that it would cost about \$630,000 to identify the projected five HIV-infected physicians in the state. These costs would rise with the repeated testing needed to detect new cases over time.

Recommendations

The issues surrounding HIV infection and AIDS are extremely emotion-laden. Some recommendations for mass screening have been supported by passionate prose²⁴ but, as discussed above, no data support this strategy. In 1989, the US Preventive Services Task Force did not recommend mass screening of any group but did recommended offering periodic screening to persons at increased risk of infection, provided informed consent was obtained and pre- and post-test counseling were available.¹⁶

In summary, there is no evidence that early detection of asymptomatic HIV infection prolongs survival. There is considerable doubt that it greatly improves the individual's quality of life. The sexual partners of HIV-infected individuals could potentially benefit from screening, but "safe-sex" should be practiced at all times, regardless of one's HIV status. After all, the somewhat dated recommendation from the US Preventive Services Task Force still seems reasonable. We would not recommend that John have HIV testing, but would counsel him to avoid high-risk behaviors.

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How Primary Care Physicians in North Carolina Counsel Patients to Stop Smoking

Clare J. Sanchez, MD, FACP, Eugene J. Lengerich, VMD, MS, Tracy C. Enright, MA, and Georjean Stoodt, MD, MPH

Cigarctte smoking is the number one preventable cause of illness and death in the United States. Despite the fact that 90% of the 50 million smokers in the US say they want to quit, only 1% do so on their own each year.

Physicians are an important resource in helping smokers to quit because each year 80% of the US population visits a physician¹ and 3%-4% of cigarette smokers quit simply because their physician simply advises them to.²,³ Primary care physicians are especially important in reducing the morbidity and mortality from smoking because they see smokers before the onset of smoking-attributable diseases. Most primary care physicians believe that stopping cigarette smoking is the single most important health promoting behavior they can encourage.⁴

The National Cancer Institute (NCI) provides training and guidelines to help physicians encourage smoking cessation in their practices. As a result of their research, the NCI proposed the four "A"s of smoking cessation:

- Ask about smoking at every opportunity,
- 2) Advise all smokers to stop,
- 3) Assist patients in stopping,
- 4) Arrange follow-up visits.5

No one has evaluated how many primary care physicians in North Carolina use smoking cessation techniques, which methods they use, and what success they have. Estimates of these items are critical if we are to provide effective resources to strengthen their services.

In this report we describe the smoking cessation techniques used by North Carolina's primary care physicians; we identify smoking-related issues about which physicians would like and need assistance; and we characterize the self-reported success of physicians in helping patients stop smoking.

Methods

During 1991, the North Carolina Department of Environment, Health, and Natural Resources, the University of North Carolina at Chapel Hill, and the Centers for Disease Control and Prevention surveyed primary care physicians practicing in North Carolina about their counseling and referral practices. Eligible physicians were those in general practice, family practice, internal medicine, and obstetrics and gynecology, who had graduated from medical school in 1990 or earlier.

A stratified sample of NC physicians in the four specialty groups was selected using a national sample frame obtained from a commercial firm. We used weighted samples, including an adjustment for non-response, so that survey responses would provide estimates that could be generalized to primary care physicians throughout North Carolina.

In addition to general demographic and practice information, we requested information about the physician's counseling habits, techniques, and methods for assisting patients with smoking cessation. For example, we asked whether they counseled their patients about smoking, when they did such counseling, and whether or not they used each of the four steps recommended by the NCI. Physicians who reported that they did use each of the four steps were considered "NCI-method physicians."

We used Software for Survey Data Analysis (SUDAAN)⁶ to estimate the proportion of physicians with various demographic and characteristics of physicians who used the NCI method. The statistical significance (p <0.05) of differences in proportions was tested by log-linear chi-square.⁶ Relative ratios (RR) of proportions were calculated and

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a 95% confidence interval (CI) for each RR was calculated with test-based formula. Since univariate analysis did not control for multiple factors, the variables that were significant in univariate analysis were subjected to multiple logistic regression.

Results

Of 878 eligible physicians, 517 completed questionnaires (58.9% response rate⁸). Of respondents, 85.6% were male, 90.7% were white, and 77.7% were board-certified in their respective specialty (Table 1). The mean age of respondents was 46.8 years (range 26-87 years) and the mean percentage of professional time spent providing patient care was 86.2% (range 10%-100%).

Almost all (98.5%) respondents agreed that they should assist asymptomatic patients with smoking cessation and 96.8% said they obtained a smoking history at the initial patient evaluation. Nearly two-thirds of respondents (62.4%) said they counsel smokers and 51.3% counseled at least 80% of their patients who smoke.

Twenty-two percent of respondents indicated that they followed all four steps recommended by the NCI (Table 1). Concerning the specific steps in the NCI method, 59.3% of physicians asked about smoking at every opportunity, 90.0% advised all smokers to stop, 66.0% assisted patients to stop smoking, and 31.8% arranged for follow-up visits. Younger, white, or board-certified physicians were significantly more likely to follow the steps than were older, non-white, or not board-certified physicians. The percentage of physicians who practiced the four steps in the NC1 method varied by specialty. Physicians in family practice, internal medicine, and general practice were 10.4, 4.7, and 3.4 times more likely than obstetrician/gynecologists to report practicing the NCI method. In multiple logistic regression with age, race, board certification and specialty, age and specialty were associated with reported use of all four steps in the NCI method.

Most physicians said they were pre-

pared to assist patients with smoking cessation; 86.2% reported being "very" or "somewhat" prepared. Almost all (99.7%) NCI-method physicians said that they were prepared to assist patients with smoking cessation although only 82.5% of those who did not practice the NCI method were (RR = 1.2, 95% Cl 1.1-1.3).

Despite being "prepared," most respondents also asked for more assistance or training; 79.2% identified one or more of 12 specific areas in which they needed further assistance or training (Table 2 next page). The areas most frequently identified related to group programs,

motivating patients to consider quitting, maintaining abstinence, assessing self-help material, and setting up an efficient follow-upsystem. NCI-method physicians were more likely to request assistance or training about group programs, maintaining abstinence, and setting up an efficient follow-upsystem than were those who did not practice the method.

Discussion

Almost all primary care physicians in our survey agreed that they should help pa-

Table 1. Percentages and relative ratios of NC primary care physicians that practiced the National Cancer institute method for smoking cessation, 1991.

	% that practice NCI method	Relative ratios* (95% confidence intervals)
Gender		
Male (86%)	22.2	1.1 (0.6-2.0)
Female (14%)	19.8	-
Age		
26-39 (45%)	27.7	2.2 (1.3-3.6)
40-54 (34%)	20.6	1.6 (0.9-2.8)
55-87 (21%)	12.8	•
Race		
White (91%)	23.6	3.5 (1.2-10.4)
Non-white (9%)	6.7	` <u>-</u>
Medical school		
Not NC (62%)	23.0	1.1 (0.8-1.6)
NC (38%)	20.4	· -
Board certified		
Yes (78%)	24.5	1.8 (1.1-3.1)
No (22%)	13.3	•
Practice type		
Family practice (37%)	38.4	10.4 (1.0-109.8)
Internal medicine (36%)	17.3	4.7 (1.8-12.4)
General practice (7%)	12.6	3.4 (2.2-5.2)
Ob/Gyn (20%)	3.7	•
Type of practice		
Solo (25%)	17.3	0.8 (0.5-1.4)
Group (48%)	24.9	1.2 (0.7-1.8)
Other (27%)	21.3	· • · · ·
Number of patients/week		
>100 (30%)	23.0	1.3 (0.9-1.8)
51-100 (35%)	23.6	1.3 (0.8-2.1)
1-50 (35%)	18.1	•
All physicians (100%)	22.0	-

^{*} Within each group the percentage of physicians practicing NCI method is divided by the class of physicians with the lowest percentage. For example, percentage of family practitioners (38.4) divided by the percentage of ob/gyns (3.7) gives a ratio of 10.4. Ratios whose confidence intervals do not include 1.0 are statistically significant.

tients stop smoking, a finding consistent with previous studies elsewhere. 9-11 However, only 51.3% of physicians reported counseling most (greater than 80%) patients who smoke. This is far short of our objective for the year 2000: that 75% of physicians routinely counsel their patients who smoke. Furthermore, only 22% of physicians reported practicing all steps of the NCI method for smoking cessation (Fig. 1).

If we hope to have patients maintain themselves off tobacco, it is critical to arrange follow-up, the fourth step in the NCI method. Less than one-third of reporting physicians arranged for follow-up of patients who wanted to quit smoking and only 38.7% requested assistance or training in how to do this. These data suggest that we need effective efforts, possibly from medical organizations or public health agencies, aimed at helping physicians to recognize the importance of follow-up and to implement efficient methods of follow-up.

Physicians also requested more information about self-help and group programs. Education in these and other effective areas such as how to personalize the message to patients, how to discuss obstacles to quitting, how to set a quit date with the patient, and the value of prescribing nicotine replacement therapy, may increase the likelihood that counseling by physicians will succeed. ¹² Medical organizations and public health agencies

Table 2. Percentage of physicians using or not using the NCI method who requested assistance or training in specific smoking cessation services.

	NCI method	No NCI method
Specific areas for assistance or training:		
Motivating patients	45	40
Advising patients	12	11
Discussing health hazards	12	13
Discussing benefits of quitting	14	14
Helping set a quit date	12	10
Assessing tobacco dependency	25	16
Advising about use of nicotine gum	12	19
Advising about nicotine fading	21	14
Setting up an efficient follow-up system	43*	32
Maintaining abstinence	49*	36
Accessing self-help materials	46	37
Knowing about group programs	62 °	46
Any assistant/training • p <0.05	89	78

should consider ways to meet these identified needs as well.

Approximately 70% of North Carolina physicians reported that they were at least somewhat successful in helping patients quit smoking. This estimate may be high; previous studies have found that 12%-41% of physicians said they knew how to help patients stop smoking^{9,10} and only 14% believed they were successful.¹¹ Our estimates were not, but should be, validated by chart review or patient follow-up data.

Our study has some other limitations. First, our survey group did not include pediatricians who are important to the reduction of future smoking-attributable morbidity and mortality. Secondly, we completed our study before widespread availability of the nicotine patch, an important adjunct to successful counseling.

Our study indicates that North Carolina's primary care physicians acknowledge their responsibility to help patients quit tobacco and that a substantial pro-

portion of them counsel patients about this. Our data also point out the need for more training of physicians in order to make their efforts more successful. We hope that our results will stimulate physicians in North Carolina to learn and use effective smoking-related counseling. We also hope that the findings will encourage the health care system, especially medical organizations and public health agencies, to make appropriate training and materials available to physicians in North Carolina.

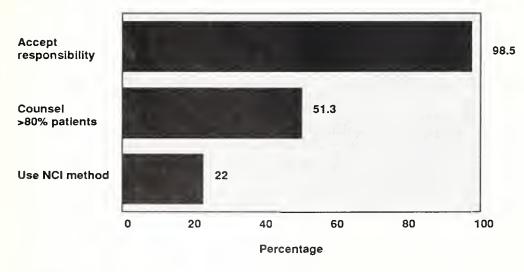


Fig 1: Percentage of physicians with selected attitudes and practices on the cessation of smoking by patients, NC, 1991.

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Climericks*

*Clinical limericks by Victor F. Tapson, MD

"Smoking"

If you want an incurable fate, Smoke and don't quit 'til too late. Firearms are quicker, But make you less sicker, The suffering's not nearly as great.

Lucky Strikes won't bring you luck.
Nor will the Camels you suck.
They'll clog your left main,
And cause ulcer pain,
And make lung cancer cells run amok.

You want to quit smoking—why can't you? A painful addiction, I'll grant you. It wrinkles your skin,¹ And to your chagrin, Our lung transplant team won't transplant you.

Did you know that your cataracts increase?² If you smoke and you smoke and don't cease? When you finally can't see, Will you then believe me? Or will you wait 'til you hear, "Rest in Peace"?

You'll be Romeo's or Juliet's antithesis.
There will be no romancing, no blisses.
Your clothing will stink
And your penis will shrink,³
And your butt(s) will be all that gets kisses.

Wearing the patch form of nicotine,
May help keep your smoking slate clean.
And improve your colitis,⁴
Which would delight us,
For your bowels could stay on routine

Oh, buy a handgun—go ahead.
And shoot at yourself 'til you're dead.
Gouge out your eyes,
And tell yourself lies,
Or merely keep smoking instead.

And get ready to meet with your Maker, A sad case, said your undertaker, A smoker, alas, And what a dumb ass! He also drank and used his salt shaker.

So your new "life" is about to begin. And smoking—from now on a sin. I heard that St. Pete, Booked your "No Smoking" suite At the Mephistopheles Inn.

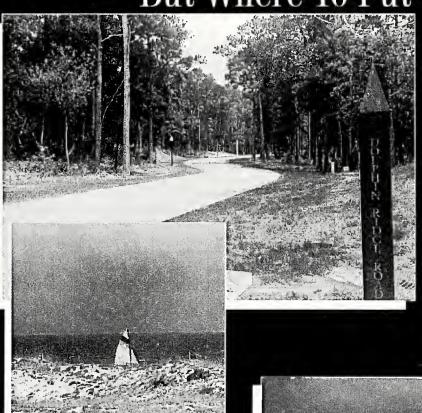
So get ready to wave to St. Peter, You drunken, butt-smokin' overeater. To the Devil's Hotel, Yes you're going to Hell, There's no smoking, just a lighter and heater.

Dr. Tapson is Assistant Professor of Medicine, Division of Pulmonary and Critical Care Medicine, Department of Medicine, Box 31175, Duke University Medical Center, Durham 27710.

¹Ann Intern Med 1991;114:840-4 ²JAMA 1992;268:989-93 ³Not really, but a good anti-smoking tactic ⁴N Engl J Med 1994;330:811-5

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Substance Abuse Treatment

Beyond the Minnesota Model

Roy J. Mathew, MD, Jeff Georgi, M Div, and Paul Nagy, MS

The treatment of substance abuse is defined predominantly by the "12 Step" program of Alcoholics Anonymous (AA). The first AA meeting took place at 5 p.m. on June 10, 1935, in a small house in Ohio. Dr. Bob Smith, an Akron surgeon who co-founded AA, met Bill Wilson, the founder, at a friend's house. Together, they developed a program that would enable seemingly hopeless alcoholics to recover. Previously, treatment of alcoholism was limited to detoxification and non-specific approaches. AA and its "12 Steps" (Table 1) offered, for the first time, a specific plan for recovery.2 Alcoholics who had no one to turn to came to AA in large numbers. Proof for the efficacy of AA came from their testimonials. Soon, the "12 Steps" of AA became the standard of care for treatment of alcoholism (and substance abuse), at least in the US.

The Minnesota Model of Inpatient Treatment

In Minnesota, three alcoholism centers based on the principles of AA were established in the late 1940s: Pioneer House (1948), Hazelden (1949), and Willmar State Hospital (1950). Hazelden, the best known of the three, was founded by four AA members in a farmhouse northeast of Minneapolis and was initially called

Table 1. The 12 Steps* of Alcoholics Anonymous

- We admitted we were powerless over alcohol—that our lives had become unmanageable.
- Came to believe that a Power greater than ourselves could restore us to sanity.
- Made a decision to turn our will and our lives over to the care of God as we understood Him.
- 4. Made a searching and fearless moral inventory of ourselves.
- Admitted to God, to ourselves, and to another human being the exact nature of our wrongs.
- 6. Were entirely ready to have God remove all these defects of character.
- 7. Humbly asked Him to remove our shortcomings.
- Made a list of all persons we had harmed and became willing to make amends to them all.
- Made direct amends to such people wherever possible, except when to do so would injure them or others.
- Continued to take personal inventory, and when we were wrong promptly admitted it
- 11. Sought through prayer and meditation to improve our conscious contact with God, as we understood Him, praying only for knowledge of His will for us and the power to carry that out.
- 12. Having had a spiritual awakening as the result of these steps, we tried to carry this message to alcoholics and to practice these principles in all our affairs.

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Hazelden Farm.^{3,4} It was a residential community with treatment based on the "12 Steps" and was staffed primarily by recovering alcoholics. The treatment model used by these centers, especially Hazelden, required a fixed period of hospitalization—usually 28 days—a strategy that became known as the Minnesota

Model.³⁻⁵ Across the country, large numbers of inpatient rehabilitation programs came into being, and general hospitals established substance abuse treatment units based on the Minnesota Model. At first, Minnesota Model treatments were supported by the government and non-profit institutions but subsequently, un-

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der pressure from the government, thirdparty carriers started picking up the bill.

The Minnesota Model for treating substance abuse was not without problems. Spirituality is central to AA philosophy: "The great fact is just this, and nothing less; that we have had deep and effective spiritual experiences which have revolutionized our whole attitude toward our fellows and God's universe." The "12 Steps" were closer to religion and philosophy than to science. Scientific verification of efficacy, essential to modern medicine, was difficult; it was late in coming and it provided only weak, if any, support.

The founders of AA said that it was a self-help program. Helping other alcoholics recover was an essential component of one's own recovery.2 AA required recovering alcoholics to assist drinking alcoholics, free of charge. However, most Minnesota Model rehabilitation facilities charged for the services provided by the recovering alcoholics and addicts on their staff. Medical social workers and professional nurses were considered auxiliary support providers; routine services were not organized along multidisciplinary medical lines. Minnesota Model treatment programs catered to substance abusers who were willing and able to participate in group therapy sessions but did very little for patients with medical disorders, or psychiatric disorders, or for those unable to recover using the "12 Steps" (and whose existence AA acknowledged).2

The Minnesota Model was financially attractive to investors since it used recovering alcoholics and addicts with minimal, if any, professional training. Helping other substance abusers was part of their own recovery, and they were willing to work for low wages. Most rehabilitation centers employed minimal staffs of nurses, social workers, and physicians. As a result, they were not equipped to take care of medical and or psychiatric complications of substance abuse and most were very resistant, if not outright opposed, to the use of psychotropic drugs. Even so, 28 days of inpatient treatment usually cost \$10,000 or more.

The Pendulum Swings Toward Outpatient Treatment

A 1986 article by Miller and Hester raised serious questions about the Minnesota Model on scientific grounds.⁷ The authors reviewed 26 studies evaluating inpatient and outpatient programs and came to the conclusion that residential care did not provide any consistent advantages over outpatient care. Holden expressed similar views in an article published in *Science*.⁸ Enoch Gordis, director of the National Institute on Alcohol Abuse and Alcoholism, described treatment of substance abuse as a "haphazard mixture of largely invalidated approaches." The

"Even though 11% to 16% of the US population suffers from alcoholism (and another 5% to 6% from drug abuse), unconditional support for 28 days of inpatient treatment is not feasible at a time when health care cost is a matter of national concern."

Institute of Medicine concluded that the best predictor of patient outcome was the patient himself or herself, and the Federal Office of Technology Assessment said that the "effects of treatment variables cannot be distinguished from the effect of patient variables." The Minnesota Model had become popular only in the US, but England, Canada, and Australia produced results in the treatment of alcoholism comparable to those in this country. Questions were raised, especially by insurance companies, about the logic of inpatient treatment for a fixed 28 days.

Even though 11% to 16% of the US population suffers from alcoholism (and another 5% to 6% from drug abuse), 10 unconditional support for 28 days of in-

patient treatment is not feasible at a time when health care cost is a matter of national concern. Besides, outpatient or inpatient treatments seem to produce comparable results. Resides and managed care companies, inpatient substance abuse treatment units began to disappear rapidly. At present, there are only a few remaining inpatient programs that require 28 days of hospitalization for all patients. Instead, intensive outpatient treatment programs have sprung up across the country.

Experience With an Outpatient Program

There were two major concerns about outpatient programs: 1) a suspicion that there would be high rates of attrition, and 2) a fear of relapse by participants. We opened an outpatient program in 198811 and our experience, like that of many others, showed that neither problem was unmanageable. Outpatient programs did not lose any more patients through attrition than inpatient programs and, of course, some patients did relapse in all programs. Close contact with patients and relatives helped provide early recognition of problems and prompt intervention. And we were able to involve family members more meaningfully in the treatment program since patients continued to live and interact with them. The treatment program—an intensive phase of eight weeks and follow-up for one yearkept the patient engaged for a prolonged period.

A Dual Diagnosis Unit

It became clear that most substance abusers could be treated effectively and safely on an outpatient basis. However, it also became apparent to us and to others that hospitalization was essential for some patients. A number of substance abusers suffer from major psychiatric and medical disorders. Patients with psychotic disorders, suicidal or homicidal ideation, organic brain syndromes, and confusional

states require hospitalization. Repeated failure of outpatient treatment or poor community support are other indications for inpatient care. Patients whose families are involved in drug using or dealing are unlikely to recover unless removed from the family.

Medical conditions associated with substance abuse (such as hepatitis and HIV infections, or bacterial endocarditis) often require inpatient treatment. Hospitalized patients who are not desperately ill can be managed on a substance abuse ward where they are exposed to substance abuse treatment while receiving medical care. Complicated detoxification can also be carried out in such an environment.

In 1992, we opened a "dual diagnosis ward" of 15 beds to provide brief hospitalization for substance abuse patients. By "dual diagnosis" we mean the coexistence of substance abuse with another medical or psychiatric disorder. From 1992 to 1993, the mean duration of stay on the ward was 11 days and the occupancy rate, 90%. After medical and psychiatric stabilization, patients are referred to intensive outpatient programs, group homes, inpatient treatment facilities, etc. The unit also provides treatment for concomitant psychiatric and medical

disorders and makes recommendations for continued treatment.

Patients are exposed to the "12 Steps" during their stay on the unit, and AA and Narcotics Anonymous meetings are held in the hospital. A multidisciplinary staff, which includes recovering substance abusers, provides treatment. These individuals have professional qualifications or certification in substance abuse counseling—recovery, by itself, is not enough.

The Alliance of Medicine and the "12 Steps"

The discipline of substance abuse treatment seems to be moving closer to the practice of medicine. The evaluation of treatment efficacy has assumed increasing importance such as when data based on empirical studies forced a shift of emphasis from inpatient to outpatient treatment. Substance abusers with medical and psychiatric complications who received inadequate care in the past now receive better treatment. A wide range of professionals—psychiatrists, addiction specialists, internists, other physicians, nurses, social workers, and substance abuse counselors—constitute the multi-

disciplinary treatment team. Medical and psychiatric complications are identified and treated appropriately.

Although the quality of care provided to the substance abuser has improved substantially, a number of problems still remain. There is still no single treatment of proven efficacy for primary substance abuse. Scientists, by and large, have been unable or unwilling to evaluate either the spirituality on which the AA philosophy is based or its relevance to substance abuse treatment. AA continues to be the most inadequately researched topic in substance abuse.

Nevertheless, the "12 Steps" remain the basis of the vast majority of treatment programs even though AA philosophy has been challenged by other movements such as Rational Recovery Program and Women for Sobriety. Approaches based on well-established theoretical models such as cognitive-behavioral13 or learning theories14 have been proposed. Advantages and disadvantages of these different approaches remain to be demonstrated. Until they are, the "12 Steps," whose effectiveness has been endorsed by 1.5 million recovering substance abusers over four decades, will remain a cornerstone of treatment in the US.

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Health Watch

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Running Injuries

KARL B. FIELDS, MD

Running has 50 million devotees who choose this activity as their primary method of fitness. How did a sport once practiced by only a few gain mass popularity? In the 1970s books such as Aerobics and The Complete Book of Running along with Frank Shorter's Olympic marathon victory helped trigger the running boom. Unlike many fads, though, participation in running has continued to increase rather than fade. While some attribute running's success to the ease of practicing the sport; the camaraderie; or the elusive "runner's high," most observers of the sport feel that the health benefits are the key motivator for continued running participation.

Recent medical studies give some indication of the type of benefit that runners achieve. As a group these individuals have excellent aerobic capacity, less body fat, better endurance, high self-esteem and few health risks. Runners tend to fall into the highest fitness levels of the general population. Recent research on the association of fitness with longer life expectancy showed a dramatic reduction in the number of deaths from both cancer and heart disease in the most physically fit individuals. Few benefits, however, come without

percent of runners experiencing one injury yearly.

risk. Musculoskeletal injury is the primary risk with 50 to 60

Fortunately, running injuries are rarely serious and with proper treatment virtually all individuals can return to their sport. Appropriate prevention can also reduce risk of injury dramatically. In order to prevent problems, though, the runner must understand the common causes of injury. Most running injuries relate to training error, training surface or location, shoe wear, psychological factors and anatomical malalignments. All of these, except anatomical changes, respond to a healthy dose of common sense.

Causes of Running Injury

Training Errors

"Too much, too soon, too fast" simplistically summarizes the primary training problems. As a rule runners can safely increase training by approximately 10% weekly without raising their risk of injury. Studies of runners suggest that those who increase by 20% or more per week have a 50% risk of injury within 4 weeks. Mileage is not the only measure of training stress. Too much speed work can also cause muscular damage quickly. Moderation is the key and for those who

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wish to start running after years of inactivity, the best approach mixes walking and running until a gradual improvement in fitness occurs. Initial exercise sessions may need to be as brief as 15 minutes depending on age and prior conditioning.

Training Surface or Location

Impact contributes to the stress on bones, muscles and joints. For this reason the type of training surface may lessen risk of injury for many runners. Grass surfaces cause less than 1/4 the resistance of the best tracks. Concrete walks and asphalt roads are much harder than tracks. Older runners, runners training at high mileage, or those with prior joint injuries reduce their risks by finding softer training venues.

Location also influences risk in a number of ways. Hilly training courses stress different muscle groups. Downhill running increases the pace and also the impact at foot strike. While soft surfaces may reduce stress, uneven surfaces can lead to ankle sprains or other injuries. Banked surfaces such as sloped roads may place too much pressure on the lower leg. All these factors merit consideration in the choice of training location.

Shoe Wear

Excessive shoe wear may lessen protection offered to the foot. Shoes wear down after 300 to 500 miles in most runners. At this point additional training places most stress on the foot and legs and not the shoe. Similarly, shoes worn on the outer sole may allow the foot to excessively role in or out leading to more muscular stress. Replacing shoes when they show signs of wear and tear proves more economical than the cost of treating an injury.



Choosing the proper shoe is another aspect of shoe wear to be considered. A runner who runs high on his/her toes does not need a shoe with most of the padding concentrated in the heel. A runner who pronates excessively (roles the foot inward) may need a shoe that resists the tendency to make this motion. A runner weighing 200 pounds does not gain adequate protection from a pair of racing flats weighing 6 ounces. For these reasons careful shoe selection requires some understanding of the individual and their running style.

Psychological Factors

A study done by the author of runners in the Greensboro Running Club showed that those felt to have Type A Behavior (certain intense personality traits) lost approximately three times as many training days as their counterparts. In addition, Type A runners showed a high tendency toward multiple injuries. This type of research confirms the impression that some people transfer their intensity from work or home to their fitness activities. Too much preoccupation with running faster, further or never missing a day leads to self destructive behaviors. The hostile runner may become angry when confronted with an injury and refuse to reduce training or try to return too quickly. For these individuals what should be a healthy activity becomes a damaging one.

Similarly, some individuals with preexisting psychological problems can use running as a socially acceptable way to pursue extreme behaviors. Two examples of this are obsessive compulsive disorder patients and patients with anorexia nervosa. Ritualistic behaviors or excessive pursuit of thinness can be masked by attributing these to a rigorous training schedule. These individuals suffer serious injuries and need careful guidance to exercise safely.

Anatomical Problems

Of all the causes of running injuries only anatomical variations consistently need the intervention of a doctor to allow the individual to safely pursue their sport. Cavus feet (high arches with inflexible feet), for example, carry an injury risk 3 to 6 times that of flat or normal arched feet. Poor alignment of the quadriceps muscle with the knee may cause the kneecap to displace or rub against underlying bone during some running activities. This malfunction predisposes the joint to certain injuries. The most common functional factor mentioned in running injuries is a tendency of the feet to excessively pronate (roll inward). Certain anatomical changes increase the instability of the foot and lead to excessive motion. Problems related to inherent physical or functional changes require medical intervention to prevent injury. They do not preclude successful participation, though, and runners need encouragement to seek appropriate care.

The Most Common Running Injuries

Running injuries primarily affect the feet and lower extremities. Runners are more likely to sustain overuse injuries as compared to the traumatic injuries seen in contact and collision sports. These overuse problems tend to relate to specific training stresses and for this reason certain common injuries cause a disproportionate amount of the problems seen in the sport.

Knee injury

Two specific problems account for 75% of the injuries at the knee joint. The first has been termed "runner's knee" or the more appropriate medical term of patello-femoral stress syndrome. This injury accounts for more visits to doctors by runners than any other injury problem. Essentially, running strengthens the hamstring muscles more effectively than the quadriceps group. Irritation around or behind the kneecap may occur, particularly in those individuals who have poor alignment. Common symptoms include pain when sitting with the knees bent ("theater sign"), when walking down stairs or when kneeling. Physically the runner may notice swelling or puffiness around the kneecap that increases after training.

The second most common injury occurs over the outside of the knee. Iliotibial band syndrome causes sharp lateral knee pain after 5 to 10 minutes of running. All but the most hard headed runners will stop because of the pain. The pain usually resolves with walking, but on resumption of running the symptoms quickly return. Factors contributing to this injury include shoes excessively worn on the outer edge of the sole or running on a sloped surface.

The iliotibial band is a wide strand of tissue that extends down the lateral aspect of the thigh from the hip to the knee. When the band is too tight or inflamed, rubbing occurs over a bony prominence on the outer aspect of the knee. This friction takes place when the knee is bent more than 30 degrees so that running aggravates the condition more so than walking.

Foot

Feet take a lot of pressure during running and persistent pain may result. The most troublesome foot condition is plantar fasciitis which causes intense heel pain that occurs with the first step out of bed in the morning. This chronic, aching heel pain accompanies standing, walking or running. During running some improvement often occurs after 10 to 15 minutes with worse pain returning later. Usually no physical changes are apparent over the foot except for a discreet area of tenderness along the inside of the heel. This condition leads to chronic pain that may persist 6 to 12 months even with rest.

The forefoot also experiences pain for a variety of reasons. Pain occurring on the sole near the ball of the foot may represent a strain of the metatarsals, long thin bones that help form the arch. The thinness of these bones predisposes them to stress fractures when excessive pressure over the bone continues. Local swelling and pain that persists even while sleeping suggest stress fracture rather than strain. A less common condition follows bruising of small nerves that lie between the thin metatarsal bones. This leads to scar formation and intermittent sharp pains that radiate down to the toes (Morton's neuromas).

Lower Leg

Achilles Tendonitis causes tenderness, warmth and swelling in the cord of tissue running from the back of the heel to the calf. This rope-like structure connects the powerful muscles of the calf to the hind foot. The Achilles-calf complex generates most of the pushoff required for running. Running differs from walking in that pushoff propels both feet off of the ground into an airborne phase of the gait cycle. Speed or running uphill require more forceful pushoff and place greater stress on the Achilles tendon. This force can lead to microscopic tears in the tendon which cause a tendonitis. On rare occasions excessive force can cause the tendon to rupture, Tenderness over the Achilles is the best marker of overtraining and should be a warning to cutback.

Shin splints describe any soreness over the anterior lower leg, but is often caused by a tendon strain. The anterior tibialis muscle, which runs down the anterior outer shin, pulls the foot upward. Therefore, too much hill running can overly stress the area and cause inflammation. The posterior tibialis and the soleus muscles attach on the inside of the shin. Either of these can become inflamed and cause soreness that runs along the border of the tibia (shin bone). Persistent pain over a localized area of the shin may represent a tibial stress fracture. Concern about stress fracture should increase when swelling develops over an area of bone.



Other running injuries occur over virtually all the tendons in the legs and feet. Stress fractures have been found in nearly every bone of the lower extremities and feet. Hip muscles are prone to injury from the stress of running turns. A strain of the piriformis muscle in the hip can trigger symptoms of sciatic nerve irritation. Hamstring strains, quadriceps strains, bursitis and groin strains all occur with some frequency and relate to specific activities during running.

What a Patient Can Do To Treat an Injury

Common sense dictates the type of treatment patients should begin on their own. The first adjustment is to reduce running by 50% at the earliest sign of injury. If a runner still has to limp, he/she should stop training and substitute some other aerobic conditioning that does not aggravate the injury. Secondly, ice helps almost all injuries that occur with running. Application of an ice pack or performing an ice massage for 10 minutes over an injured area may reduce swelling and inflammation. Thirdly, limited amounts of aspirin or ibuprofen may speed resolution in those patients

who do not have stomach upset or other reasons not to use these medications.

When To See a Physician

When an injury persists after 1 to 2 weeks of common sense care, advice from a physician may help the runner begin the road to recovery. For each of the common problems mentioned above specific treatments exist that rarely involve surgery. The key to any sports injury involves appropriate diagnosis, acute treatment and directed rehabilitation. For certain injuries splints, knee sleeves, felt pads, orthotics or other medical devices may provide the protection needed for healing to start. Medication plays a lesser role usually acting as an adjunct to other treatment. However, for certain conditions injection of corticosteroids and a local anesthetic relieves the severe symptoms so that a patient can begin the rehabilitation process. The physician should direct the runner to a specific recovery program either at home or through organized physical therapy. A reevaluation of the injury after some treatment allows the doctor to give safe guidelines to resume training. This type of individualized assessment gives the runner the best chance of safe return to full participation in their sport.

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Poikiloderma of Civatte

Resolution After Treatment With the Pulsed Dye Laser

Robert E. Clark, MD, PhD, and Francisco Jimenez-Acosta, MD

Poikiloderma of Civatte is a chronic discoloration of the side of the neck and upper chest. It is common in fair complected, middle-aged men and women. The sun-exposed areas of the lateral neck show blotchy hyperpigmentation, erythema, and telangiectases with distinct sparing of the neck directly below the chin. Poikiloderma of Civatte, although usually asymptomatic, may be a source of significant cosmetic disfigurement. Dermatology textbooks usually refer to the condition as non-treatable, and recommend only the continuous use of sunscreens and avoiding sun exposure.1 The telangiectatic and pigmented components of Poikiloderma of Civatte do not respond to topical or oral medications, and electrocoagulation of the telangiectases may leave pitted scars. The argon laser has a similar significant risk of scarring.2

There have been a few reports on the treatment of this condition with the pulsed dye laser (PDL).^{3,4} We recently obtained a good result from such treatment and report the patient's case, emphasizing that PDL ablation appears to be the treatment of choice.

The authors are with the Dermatologic Surgery and Cutaneous Oncology Unit, Division of Dermatology, Department of Medicine, Box 3915, Duke University Medical Center, Durham 27710.

Case Report

A 63-year-old white male came to the Dermatologic Surgery Unit at Duke University Medical Center complaining of several years of progressively increasing redness and pigmentation of both sides of the neck and the upper chest. He had been treated in the past with numerous sunscreens, retinoic acid cream, and hydroquinone-based creams without significant improvement of the telangiectatic vascular component. The physical examination was typical for Poikiloderma of Civatte (Fig. 1, at right). There was a reticulated pattern of multiple fine telangiectases that blanched on pressure, and the sun-protected skin beneath the chin was spared.

We began treatment with the 585nm PDL (Candela Laser Corporation, Weyland, Mass.) by first determining the minimum optimal energy fluence required to clear the telangiectases. That energy density level was 6.5 joules/cm.2 As expected from treatment with the PDL, treated areas initially became purpuric (bruised) and this resolved over 10 to 14 days. Following treatment, the patient was told to avoid exposure to direct sunlight and apply sunscreens daily. The unwanted telangiectases had resolved by the four-week follow-up visit. We used a total of four treatment sessions at eightweek intervals with an energy density of 6.5 joules/cm² to achieve more than 80% clinical improvement. No skin texture changes, scarring, or hypopigmentation were noted, and no post-operative complications were encountered (Fig. 2, at right).

Discussion

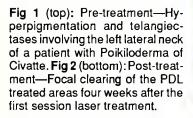
Poikiloderma of Civatte consists of benign, but cosmetically disfiguring areas of telangiectases and blotchy hyperpigmentation involving the sun-exposed lateral neck, usually in middle-aged men and women. The distribution of the pigmentation implicates chronic sunlight exposure as the cause, although cosmetic-induced photosensitization may contribute.

Because the vascular component is predominant, we reasoned that the most effective treatment of this condition would selectively target this vascular change. The flashlamp-pumped pulsed dye laser provides such selectivity because it emits light at a wavelength of 585nm, an absorption peak for oxyhemoglobin. Melanin also absorbs at this wavelength (though to a much lesser degree) so hypopigmentation, especially in darkly pigmented individuals, may result from its use. The pulse duration of the PDL is approximately 450 microseconds, which limits thermal damage to the targeted blood vessels and thereby minimizes scarring from heat damage to the adjacent dermis.

Most patients referred for PDL treat-

ment have port wine-stain birthmarks (vascular malformations) or hemangiomas. However, the PDL has been successfully used to treat other benign cutaneous vascular lesions including facial telangiectases, rosacea, pyogenie granulomas, venous lakes, spider veins, cherry angiomas, and angiokeratomas.5,6 The first good results from use of the PDL in Poikiloderma of Civatte were reported by Geronemus, and Wheeland and Applebaum. Geronemus3 reported that three patients had 95% clearing of the skin, without scarring, after four sessions of PDL at an energy level of 6.5 to 7 joules/cm.2 Wheeland and Applebaum4 reported great improvement of both the telangiectases and the pigmentation in several patients using the 585nm PDL at an energy level of 5 to 6 joules/cm.2 They found no residual scarring or hypopigmentation.

We conclude from our results and the reported experience of others³-5 that pulsed dye laser ablation is the treatment of choice for Poikiloderma of Civatte, It is possible to achieve an excellent cosmetic outcome with few undesirable secondary effects. □







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Letters to the Editor

conlinued from page 210

Even Retired Docs Need CME

To the Editor:

As a non-practicing "doc," the *Journal* is still good reading and informative. (I believe even retired physicians need *some* kind of continuing medical education).

As always, I am supportive and remain willing to assist in maintaining the great *Journal* you and your outstanding staff are producing.

W. Grimes Byerly, MD, FACS 1446 6th St. Circle, NW Hickory, NC 28601

Whipple's Disease

The Duke Connection

Malcolm P. Tyor, MD

Editor's note: The author adapted this article from his presentation to the Julian M. Ruffin-Malcolm P. Tyor gastroenterology symposium, February 27, 1993, at the Washington Duke Inn, Durham.

In my address to the American Gastroenterological Association in 1982, I said "that training programs should not cut off their graduates once they have sent them out; they should marry them on, not marry them off." One of my few prescient acts in academe occurred in 1983 when I followed my own advice and invited many of you—our former fellows—to rejoin the Division of Gastroenterology as part of a study group coordinated at Duke University Medical Center.

We've had some fun, as well as unique experiences in the intervening years. We became co-investigators again, this time in clinical pharmacological studies and in an NIH-sponsored small business grant; we used office records to validate and publish the data you collected from your patients; 12 we had frequent exchanges by phone and occasional visits to all sites. Coincidentally, we had a smashing reception and dinner at the Duke University Museum of Art.

Here I will share my views on a recent chapter in the history of gastroenterology and the role that the Duke Division of Gastroenterology played in it.

When I returned to Durham and Duke as a faculty member in 1955, Dr. Ruffin had been the resident expert in gastroenterology for 25 years. As I wrote in 1980, for the 50th anniversary edition of the Duke University School of Medicine year-book, *Aesculapian*:

"Julian M. Ruffin, MD, was himself the Division of Gastroenterology for the first 25 years. He taught students and house staff on the wards and in the clinics, cared for patients and instructed his fellows in the Private Diagnostic Clinic, gathered clinical data with his fellows, published two volumes of significant observations, directed the medical outpatient clinic, and played guitar when in the company of good friends and suitable refreshment."

It is in keeping with the theme of this presentation that Dr. Ruffin initiated and co-authored the published results of two major cooperative trials^{3,4} and that one of his several articles on Whipple's disease⁵ was recently reissued as a "Classic in Medicine."

Whipple's Disease at Duke

The history of interest in and investigation of Whipple's disease at Duke epitomizes the ideal of clinical scholarship: more than 40 years of endeavor involving 14 former fellows in gastroenterology and 16 faculty, chiefly members of the Department of Medicine, but also from the Departments of Biochemistry, Pathology, and Pharmacology.

Whipple's disease is certainly not a public health problem, but it does continue to kill people.6 As you know, the causative organism, Whipple's bacillus, although precisely identified in tissue by electron microscopy,7 has not yet been grown in culture. Treatment is effective, but the most efficacious treatment program is still unknown. And, as some of you may know, Wilson8 at Duke and Relman9 at Stanford have recently used the techniques of molecular genetics to clarify our understanding of these problems. Their new data may guide us to the information needed to launch a longawaited cooperative trial of treatment. For now, I will chronicle some important observations about the natural history and treatment of Whipple's disease, highlighting the Duke connection.

Most scholars agree that Whipple's description of the index case in 1907¹⁰ is the most erudite case report in the medical literature. He described the gross anatomy of the mesentery (Fig. 1A) and

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the microscopic appearance of mesenteric lymph nodes (Fig. 1B). He recognized that the pink foamy cells he saw did not contain fat, and that the positive lipid globules he saw in mesenteric nodes and in intestinal mucosa (Fig. 2) were primarily extracellular, not within lymphatic channels.

The Duke connection to Whipple's disease began in 1949, when Black-Schaffer announced the pathognomonic tinctorial attribute of the disorder: "sections of the intestine of four cases were treated with Schiff's periodic acid stain (PAS), [and] the phagocytosed material in the mucosa stained deep scarlet" (Fig. 3).11 ln 1950, J.P. Hendrix reported four cases of Whipple's disease from Duke¹² one being the first patient diagnosed during life—by biopsy of a mesenteric node. Philip Handler's laboratory quantified stool fat in two of these patients and measured their pancreatic enzyme function; he was the first to quantify the steatorrhea of Whipple's disease and the first to propose the mechanism of how it happens (he suggested a cellular "failure to transmit fat"). Handler became chairman of the Department of Biochemistry at Duke one year later and president of the National Academy of Sciences 20 years later (clearly not a causal relationship).

Treating Whipple's Disease

In 1952 Paulley reported the first successful treatment of Whipple's disease with an antibiotic (chloramphenicol).¹³ In 1958 Sieracki reported the presence of PAS-positive macrophages in virtually all body tissues of autopsied patients with Whipple's disease.¹⁴ He also found occasional PAS-positive macrophages in the lymph nodes and intestine of autopsied patients with other disorders. Also in 1958, Bolt reported the diagnosis of Whipple's disease using per-oral intestinal biopsy.¹⁵ This became the accepted approach to diagnosis (Fig. 4 A,B).

Chears (a former fellow at Duke with Ruffin) reported¹⁶ a patient whose per-oral small intestinal biopsies were

studied by Ashworth using the electron microscope. Their paper (and that of Yardley and Hendrix in 1961¹⁷) recognized that the rod-shaped intracellular structures seen with electron microscopy were bacilli (Fig. 5). They also demonstrated membranous inclusions in macrophages, believed to be derived from the bacilli.

A series of articles by Ruffin and colleagues between 1961 and 1965¹⁸⁻²⁰ removed all doubt about whether antibiotics were the treatment of choice for Whipple's disease. This terrible, wasting disease had become "a curable illness." Ruffin's empirical treatment program was as follows: penicillin (1.2 million units intravenously) and streptomycin (1 gram intramuscularly), both for 14 days, followed by tetracycline for one year.

During the 1960s, Dobbins, Garbutt, Tyor, and colleagues studied the pathogenesis of steatorrhea in patients with Whipple's.21,22 The data confirmed Handler's original speculation¹² of epithelial cell failure caused by the Whipple's bacillus. In addition, we showed that all functional changes were reversed two to three weeks after beginning Ruffin's recommended therapy. Dr. Ruffin and his colleagues published a review of the clinical, laboratory, morphologic, and bacteriologic findings, and the response to therapy in the 19 patients with Whipple's disease who had been seen at Duke Medical Center up to 1970.5

The report by Knox, Bayless, and Pittman in 1976²³ pointed out that late-onset neurological disease could occur in patients whose Whipple's disease had been treated and whose intestinal symptoms and morphology had cleared. The central nervous system and ophthalmic presentations of Whipple's disease, as well as those of patients with presumably untreated disease and those with minimal intestinal symptoms and signs, were summarized by Dobbins in 1987.⁷

In 1978, Mansbach reported²⁴ the case of a 38-year-old white man who presented after several months of arthritis, night sweats, and lymphadenopathy. Biopsy of an axillary lymph node showed "noncaseating granulomas." Subsequent

staining with periodic acid revealed PAS-positive macrophages (Fig. 6A); the original, formalin-fixed biopsy was "rescued," and electron microscopy identified bacilliform bodies identical to the Whipple's bacillus (Fig 6B). Light and electron microscopy of nine biopsies of the duodenum and jejunum were negative. After six months of antibiotic treatment, the patient was well; the physical exam, normal; and biopsy of an epitrochlear node, negative.

In 1985 Dobbins and colleagues published the first comprehensive and critical survey of antimicrobial treatment regimens for newly diagnosed patients and for those in relapse.6 Eighty-eight patients who met rigid diagnostic criteria for Whipple's disease and who had been followed at least two years after diagnosis and one year after treatment were reviewed. Nineteen patients were from the Duke series (six of whom had been seen subsequent to the 1970 report⁵). The authors identified "significant limitations to their survey-type methods of case ascertainment" but, despite these, they felt that they could "conclude that tetracycline alone or penicillin alone is inadequate therapy for Whipple's disease and that all newly diagnosed patients should be treated for one year with drugs that cross the blood-brain barrier, e.g., trimethoprim-sulfamethoxazole (TMP-SMX) or parenteral penicillin and streptomycin followed by TMP-SMX." They further concluded that central nervous system relapse is resistant to antibiotic therapy and that, whenever possible, relapse should be defined by the demonstrable reappearance of bacilli rather than merely the presence of PAS positive macrophages on biopsy.25

The New Biology and Whipple's Disease

The Whipple's bacillus is a distinct organism with unique morphologic features. No bacterium has been reproducibly isolated in culture from patients with Whipple' disease, nor have any specific phenotypic features (other than the mor-



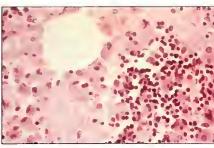
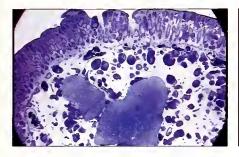
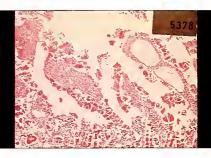


Fig 1A (left): Gross anatomy of the mesentery in Whipple's disease, showing the characteristic enlarged cystic, fat-filled mesenteric lymph nodes. Fig 1B (right): Light microscopic photograph of section of mesenteric lymph node, showing characteristic pink foamy cells (macrophages). Hematoxylin and eosin stain (both from the Wiley D. Forbus Collection, Department of Pathology, Duke Medical Center.)





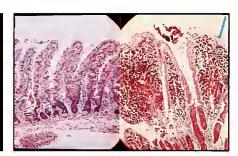
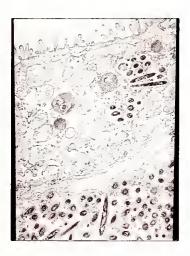
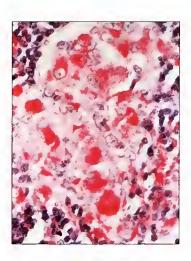


Fig 2 (left): Light microscopic photograph of thick section of epon-embedded intestinal biopsy specimen. Note lipid accumulations and numerous macrophages in the lamina propria. Toluidine blue stain, magnification x500. Reproduced with permission.⁵ Flg 3 (center): Light microscopic photograph of a section of intestinal mucosa "rescued" from Whipple's original case. There are PAS-positive accumulations in the lamina propria—presumably originally in macrophages, but disintegrated by 1949 when Black-Schaffer stained the section (42 years post-mortem). (From the Wiley D. Forbus Collection, Department of Pathology, Duke Medical Center.) Fig 4 (right—left side): Light microscopic photograph of intestinal mucosa from the proximal jejunum of a patient with recurrent pancreatic disease. Note an occasional PAS-positive mucus-producing cell lining the normal villi. Flg 4 (right—right side): Light microscopic photograph of intestinal mucosa from the proximal jejunum of a patient with untreated Whipple's disease. Note the diagnostic PAS-macrophages stuffed in the lamina propria. (Prepared by William O. Dobbins, III)





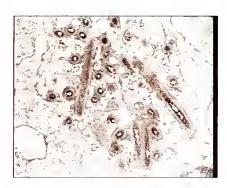


Fig 5 (left): Electron micrograph illustrating the invasion of intestinal absorptive cells by Whipple's bacilli. There are numerous bacilli within the lamina propria. Magnification x25,000. Reproduced with permission. Fig 6A (center): PAS-positive cytoplasmic granules are visible in a small collection of macrophages in the left axillary lymph node of a patient with systemic, but not intestinal, illness. (Original magnification x1000.) Fig 6B (right): Numerous rod-shaped bacilliform bodies within the cytoplasm of a macrophage. (Original magnification x13750.) Reproduced with permission.²⁴

phological appearance at electron microscopy) been noted that would identify the causative agent. The conditions that allow growth of this organism are unknown 9

Two groups, Wilson and colleagues⁸ and Relman and colleagues,⁹ have recently used a molecular genetic approach to identify and phylogenetically classify the Whipple's bacillus. The technique uses the polymerase chain reaction to amplify a sequence of bacterial 16S ribosomal RNA (rRna) derived directly from infected tissue. The two analyses share common ground, but one group believes their data provide enough phylogenetic information to permit definitive classification,⁹ whereas the other believes that "truly similar organisms are out there" which, when found, will pinpoint the

position of Whipple's bacillus on the phylogenetic tree.⁸ Future studies will clarify these issues, and knowing "the phylogenetic relations may lead to the determination of the conditions for culturing this organism in vitro." Presently, it is clear that application of these molecular techniques to tissue samples such as the "rescued" axillary node of Mansbach et al²⁶ can provide additional proof that Whipple's disease can be a primarily extraintestinal illness.²⁴

Clinical Investigation and the Joys of Medicine

Finally, to come full circle—I've been interested in the issues that bear on the

happiness of practicing physicians (gastroenterologists) ever since 1954, when I practiced with one of my mentors, the late James L. Borland, Sr., in Jacksonville, Florida. No one can argue with the innate feelings of satisfaction that derive from altruism to patients, or from the ability to provide generous family support. Nevertheless, I also believe that the deep understanding of a problem, one that has come to our attention through clinical observation, is the first step toward medical satisfaction.

Author's note: Citations listed below with bold-face/italicized numerals denote contributions from faculty and fellows at Duke University Medical Center.

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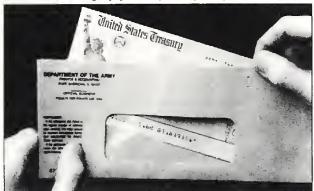
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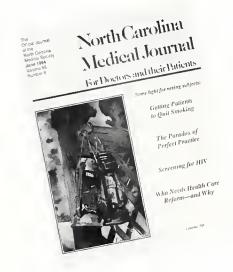
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The Paradox of Perfect Practice

David D. Grove, PhD, MD

It's about the paradox.

It's about the fact that lots and lots of physicians, concerned about their patients, wanting only the best for them, trying their very best to bring about that best for them, get sued every year. Those doctors then suffer depression, financial or professional loss (or both), and various other disruptions of their lives.

It's about the fact that Tracy Lischer¹ feels she can soothe troubled waters by pouring on platitudes and smugness that try to debunk "myths about physician-lawyer relationships." And about her indignity when she discovers that physicians are not impressed by her sincerity or the content of her arguments.

It's about the fact that everything contributed by physicians to this debate about doctors and lawyers in the *Journal* over the past eight months—heartfelt; sincere; pained; full of searching for answers as it has been—has missed the point.

What Ms. Lischer does understand, and we don't, is that the practice of medicine has an objective reality that is not the same as our perception of it. The face Medicine presents to our patients is not always the face we would have them see, nor always the face we ourselves see. Dr. Neelon states that "doctors see themselves as living in a world of pragmatic reality," yet we fail to accept the one reality that drives the whole of malpractice litigation, namely that perfect practice is not possible. Injury does occur. Why do the Tracy Lischers of the world realize this, while physicians don't?

The Basis of the Paradox

Primum non nocere!: the Hippocratic standard of ethical practice, the guide to our relationships with our patients, and to our diagnostic and therapeutic efforts. That's how we behave, isn't it? Never, ever, hurt a patient? Well, as Ms. Lischer points out only too correctly, people do get hurt. Sometimes directly, although we never "mean" to. Sometimes for no definable reason, or the patient just doesn't get better, or thinks that a different diagnosis might have changed the outcome. Doctors

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agree that those things are bad, but we don't think they are our faults, and we don't want to be blamed when they happen.

These matters, I suggest, are the basis of a paradox. Paradoxes are upsetting; they gnaw at us that something is wrong, that there is an answer hiding somewhere if we could only figure it out. We don't hurt our patients intentionally, we act in the most ethical and upright way we know, and yet we feel hectored by shysters who practice in the most brutal, brutish, selfish, power-hungry way; their only regard is winning, truthbe-damned! How did these people come by this mantle of righteousness? How in the world can they be viewed as the good guys, and we as the bad? The answer, I submit, leads to the solution of the paradox. It is the key to resolving the medical tort problem and, should we have the courage to act on its implications, a source of enormous benefit to ourselves, our practices, our patients, and society as a whole. As an added benefit, it provides a weapon with which to gore the lawyers' oxen to a fare-thee-well!

The answer is injury: real injury; perceived injury; invented injury; injury due to negligence; injury due to mischance; injury due to malfeasance on the part of the patients, their friends, their relatives; injury due to actions, to inactions; injury from the successes, or the failures (real or imagined), of the doctors, hospitals, the hosts of other health-care providers; injury at every and all levels, of every type, and of every cause. It doesn't matter how injury is caused. It doesn't matter that physicians see causality as a complex web of events in which no individual strand can be traced to a specific cause. Americans refuse to accept the idea that injury can occur without blame, and they have discovered ways to make others pay for it. This astounds doctors. We don't intentionally cause harm to our patients. Why should we be held liable when injury happens?

The Inevitability of Injury

We have to realize, once and for all, that injury is inevitable in a medical environment. It just adds insult to injury that our present definition of medical malpractice is not too different from: "If a lawyer can convince a jury to make a doctor (hospital, etc.) compensate someone because of an outcome, malpractice occurred." Tidy and profitable! But not exactly the kind of thing that will encourage Ms. Lischer's legal Horatii to stand firm before the onslaught of screaming hordes of potential litigants.

Our predecessors on the island of Cos treated their patients with baths and prayer and a few poultices. As long as those healers did not actually kill patients (and did not cut for stone), no framework existed within which to allege that malpractice had occurred. Physicians who rarely altered the anatomy or physiology of the patient could hardly be considered to have actively caused bad outcomes or injury. However, as physicians took a more active and interventional role in diagnosis and treatment, their increased interaction with the anatomy and physiology of the patient guaranteed that some results would not be those hoped for. I once read that modern ideas of chance derived from the observation that Polish cavalrymen were injured by their horses at a fairly constant rate. No one knew which rider would be hurt, but as long as the two species were

in contact, injuries occurred. The analogy holds true for medicine: contact between physician and patient entails risk that injury will occur.

The Part Played by Doctors

We have to realize that we have asked for it. We physicians have encouraged at least two kinds of unreasonable ex-

pectation in our patients: 1) We spend quite a bit of our time acting as though we can keep people from getting sick. Our patients, believing that we can actually deliver on this, feel frustrated and angry when illness and death occur anyway. 2) We have bought into the notion that medicine can be practiced perfectly, that we can alter anatomy and physiology without entailing risk. As a result, when injury occurs, we think it simply cannot be our fault and that we should not be asked to compensate those hurt. This sort of thinking just won't fly anymore.

Possibly less important, but still a source of problems, is that all too many physicians act like jerks! We talk down to our patients; we keep them waiting unreasonably; we flaunt expensive cars. Sure, we drag out to the emergency room at 3 a.m., but patients think we are being overpaid even for that. Sometimes we act like jerks with other physicians—consider the case of Dr. Peacock's junior medical examiner.³ There are many reasons why we act like jerks (some almost justified), but there is no question that all physicians suffer when any member of our profession is inappropriately flip, self-centered, sarcastic, greedy, etc. Maybe we should all take self-improvement courses. Maybe we could make such an improvement in our demeanor that tort would be eliminated, but I doubt it!

The Part Played by the Malpractice Industry

We must accept the fact that a huge, greedy, and well-funded industry now depends on the proceeds gained by suing physicians. Ms. Lischer, and no doubt the American Trial Lawyers Association, see this industry as providing a humane and carefully modified system of redress for the numerous, flagrant, and wholly preventable injuries suffered by patients at the hands of callous, profit-hungry physicians. Physicians see an inhumane, grossly biased, bullying system driven by callous, profit-hungry lawyers (and their scarcely less culpable legislative colleagues) who are willing to besmirch the reputation or ruin the career of anyone in pursuit of profit.

The malpractice industry claims that "lots of litigation makes better medical practice." This is actually a testable hypothesis: The fact that the American Trial Lawyers Association has *not* spent any of its vast funds to prove it (what a goldmine such proof would be for them!) no doubt accurately

reflects their understanding that this particular "truth" is safer with the nation's law-yer-friendly legislatures than under the glare of objective assessment. Be that as it may, the industry is not going to dry up and blow away on its own accord. Our schools are bursting with aspiring lawyers who will look to malpractice for their income.

"We physicians have encouraged...unreasonable expectation in our patients: We spend quite a bit of our time acting as though we can keep people from getting sick...(and), we have bought into the notion that medicine can be practiced perfectly...."

Two Ways of Looking at "Reasonable Compensation"

There is a deep discordance between what plaintiffs, and the plaintiff's bar, think is reasonable, and what we doctors think is reasonable in terms of compensation. Doctors think that it is unreasonable to expect compensation from someone who has not injured you, even though you have suffered injury. As Ms. Lischer points out, lawyers think that clients should be compensated for injury no matter where the compensation comes from.

Furthermore, the courts in recent years have been all too willing to use tort as a basis for transferring wealth. Based on our causality-based view of events, based on our images of ourselves, our professional pride, our concern with ethics, we reject the notion that we should compensate for mischance. We even go to the extreme of denying that mischances occur. Unfortunately, mischances most definitely do occur, just as surely as the Polish cavalry occasionally got stomped by its own horses! We need to remember that we object to a political agenda, not a statistical one.

A View Toward a Solution

The essential features of the paradox consist of: a completely irrational expectation of perfectibility in medicine and a failure to recognize that injuries occur in spite of our best intentions to the contrary; an expectation by the public of compensation for injury regardless of cause; and a perception that physicians, because they insist that compensation should be based on objective causality, are morally and ethically inferior to the plaintiff's legal representatives. (I omit the issue of doctors acting like jerks; it is probably insoluble.)

Now, we must somehow solve this paradox. All too predictably, the American Medical Association and other medical societies have failed to identify the essential problem. They fixate on the questions that blind all our thinking: "Why me?" "If I didn't do something bad, why should someone accuse me?" "Look for what did cause the injury!" This type of thinking has produced endless debates over limitation of damages, fee caps for lawyers, and a whole panoply of meaningless cosmetic adjustments to tort. In the long run, it is a useless approach. Indeed, I submit that it is a useless approach even now! The plaintiffs' bar is every bit as greedy and self-serving a monopoly as the Federal Trade Commission seems to think medicine will become if two physicians ever discuss their fees. The situation can only be overturned by a radical alteration in our whole approach to medical injury. We must demand a system that will be demonstrably better for society than the present tort system, allowing us to reclaim the moral high ground while reaping benefits for medical practice.

The Rationale of a Tort System

Why we should have a medical tort system? What should we, as a civilized and technically advanced country, be able to expect from such a system? How and why does our current system fail our expectations? How we can change our system to get what we deserve?

Presumably our society permits a tort system in medicine to exist because, on balance, society believes that it derives legitimate benefits from such a system. What exactly could these legitimate benefits be? I can envisage two:

- Provision of reasonable compensation to "victims" of medical "malpractice."
- 2. A systematic improvement in medical practice driven by malpractice litigation ("Lots of litigation...").

These seem to me to be reasonable goals for a system that compensates for medical injuries. It is hard for me to imagine other benefits that society might reasonably expect from medical malpractice litigation except revenge or punishment of "bad" practitioners. The latter are limited goals indeed since, except for mental torture and loss of income, the present system is extremely unlikely to impose punishment on practitioners.

The goals certainly do not reflect the state of affairs in the US. The idea of "reasonable compensation to victims" exists

mainly in the minds of the Ms, Lischers of America. When did anyone hear a plaintiff's attorney ask only for reasonable compensation in a malpractice case? Defendants can choose between a quickie settlement—extremely profitable (on a perhour basis) to the plaintiff's lawyer—or a costly defense by a malpractice carrier who must contend with lawyers' extraordinary facility in inventing new ways in which injuries, real or imagined, could have been prevented. H.A. Easley, III, who holds JD and MD degrees, pointed out4 that suits are rarely filed on the basis of actual, preventable medical injury, and that the dollar return to those paid off by the system amounts to only 26% of the malpractice premiums paid (and this figure ignores the cost to society of "defensive medicine"). We can only assume that profitability to both plaintiffs' and defense sides of the malpractice bar and a "hit the jackpot" mentality are stronger forces than a search for reasonableness.

The idea that medical practice is systematically improved by tort litigation is, as I pointed out above, testable. Lacking any serious evaluation, the assertion deserves the status of propaganda. We can conclude that the present tort system makes a bleak, expensive, wasteful—even dishonest?—mockery of two quite worthy goals. At its best it is a very inefficient way of exacting revenge on physicians whose patients suffer unfavorable outcomes.

What Might We Do?

Can we remedy this situation? I suggest that we take as our goals the reasonable compensation of those legitimately injured, and the development of an information system for the systematic improvement of medical practice, and that we actually address the means of accomplishing them. By accepting the reality of medical injury and demanding a constructive response to it, we can solve the paradox.

Let's grant that injury really occurs in medical practice, and that reasonable compensation of the injured is only proper. Then what we will need is a system that identifies such injury in a non-adversarial manner, and compensates it promptly, fairly, and with minimal overhead cost. Let's also recognize that modern medical practice is almost unimaginably complex, that it sometimes fails to function adequately, or may have little real hope of bringing about results desperately desired. Only through a process of constant improvement and development of new knowledge can practice ultimately achieve high efficacy and cost-effectiveness.

In his book *Knowledge and Decisions* Thomas Sowell⁵ points out that the acquisition of knowledge is a very expensive and intensive activity. Nevertheless, knowledge must be developed about the systems in which medical practice occurs, and the ways in which those systems can benefit or harm patients. Our system is so large and has so many variables that a good bit of trial and error will be needed in order to find out what works and how it can be best used. Knowledge is the crux of the issue, and I would argue that America's medical tort system is the

greatest enemy of the development of such knowledge. Fear of being sued for any and every less-than-ideal outcome has silenced informal discussion of clinical problems in the physicians' lounges of America's hospitals. Similar considerations make it impossible for hospitals to communicate about systematic and presumably preventable problems ("If they find out that we're changing the way we do it, they'll sue us for doing it the old way until now..."). One can only guess at the huge costs of constantly reinventing and rediscovering ideas and methods known to others but unshared.

The current medical-litigation system fails to accomplish every legitimate role that is claimed for it. Compensation of the injured is in no way related to their injuries, nor is its cost reasonable. Rather than being a source of constant improvement in medical practice, the system forms the greatest single impediment to identification and correction of preventable systematic problems in the provision of health care.

The Advantages of a No-Fault System

If the tort system as presently constituted does not accomplish its legitimate purposes, can these problems be addressed in a way that allows knowledge to be gained from poor outcomes, that compensates such outcomes fairly, and that increases the efficiency of the whole process? I believe that the answer is "yes," and that it can only be achieved through a system of "nofault" compensation. Such a system would allow increased efficiency, fairness, and accrual of knowledge; it would also permit full disclosure to society of the costs and benefits (and shortcomings) of medical services. Society as a whole would learn that there are inescapable trade-offs between the costs and benefits of medical practice, and that society must decide how to spend its own money for compensation.

A "no-fault" system has the potential to eliminate the "jackpot" mentality, to reduce the overhead costs of compensation, to make it much more likely that injured individuals will receive prompt and appropriate compensation, to make it easier and more efficient to disseminate information that will correct systematic errors of practice, and to help us come to grips at last with the fact that injuries do occur.

What practical scheme would produce such results? Clearly, from the patient's perspective there must be a classification of nearly all potential injuries (including the inventive and everpopular "injuries" caused by failure to diagnose or treat) and a method of translating the determination of injury into payment. Appropriate models such as state disability determination methods and the military long-term disability classification system already exist. It should not be beyond human ability to develop an injury classification and compensation scheme that could deal with 90% or more of all injuries, and provide prompt disposition of cases. Every patient whose treatment resulted in a defined injury would be compensated every time. Results would be uniform and comparable from hospital to hospital and

practitioner to practitioner. There would be reduced anxiety on the part of those injured, defined responsibilities about diagnoses and treatment (thus reducing the costs of defensive medicine), and pressure against creative claims for "exotic" injuries.

By explicitly identifying types of injuries, no-fault would help dispel the myth that medical practice can be carried out perfectly and without risk to patients, thus supporting a more realistic expectation of outcomes. Surely, the caseload could be handled at about the 3% overhead now claimed for Medicare,6 as opposed the 74% used by our current "system." The no-fault approach would make unnecessary the costly knowledge about each individual person's needs and aspirations—information now used to argue the need for huge compensation settlements. It should be quite feasible to provide a compensation for any given injury that would be much larger than the average injured person-most of whom do not now receive any compensation—now gets. An alternative approach for really extraordinary cases would have to be put in place, but consideration of such cases might help to focus society's attention on a reasonable definition of bad outcomes. A no-fault system could place our society in a position to deal with the impact of cost-based treatment choices by compensating a slightly increased incidence of "bad" outcomes from cost-saving treatments.

From society's standpoint, there will be a quid pro quo for such changes. This may be the sticking point from our professional perspective. Information gained from a system of routine and consistent compensation will permit comparison of institutions and practitioners according to compensation costs. If a hospital does much worse than average, it will look to hospitals that do better as models for improvement. If a hospital performed spectacularly well, it might wish to divert some of its resources to other areas and allow its compensation level to rise toward the average. A strong track record could serve as a defense against claims for unusual injury. We might even learn that some diseases are so prone to "injury" (that is, bad outcome) that no treatment is worthwhile at all! There is no theoretical limit to the benefits of making more and more information available, rather than allowing it to be held hostage to the tort system.

Similar considerations will apply to individual practitioners. No doubt many more of us will generate compensation costs than are now sued for malpractice, but acceptance that imperfect outcomes are inevitable, rather than reprehensible departures from good practice, should ease our burden of guilt. If, as is often alleged, some practitioners generate greatly disproportionate amounts of "malpractice," they would be readily exposed. Perhaps real peer review could return to American medicine.

The Pros and the Cons

A no-fault system offers, at the very least, an opportunity for physicians to come to grips with the reality that injuries inevi-

tably occur in medical practice; for debunking of the myth of perfection in medicine, and moderation of unreasonable expectations based on that myth; for removal of the stigma of guilt and of personal financial risk; for institutions and practitioners to learn to practice within the usual range of imperfect outcomes; for reductions in the costs of defensive medicine; for fairer, more prompt compensation of those actually injured; for huge reductions in the overhead costs of providing compensation; for the development of unlimited information; for increased participation by society as a whole in decisions about what risks in medicine really are acceptable; and, not least, for improved physician-patient relationships in an atmosphere of candor and more realistic expectations.

What will be the costs for all these good things? The plaintiff's bar, the malpractice carriers, those who wish to sue purely out of anger or desire for revenge, and the jackpot-seekers, will be big losers. The few physicians and institutions unable to practice within the usual range of compensationgeneration will lose, but at least this will be based on objective comparison to the practices of others, rather than on an irrational standard of perfection. Many physicians may lose a little autonomy, as society decides that some things simply will not be supported. Those of us who imagine they are perfect will lose some self esteem, but they will be able to re-establish their self esteem based on their true worth. The nation as a whole may eventually be forced to go through the mental effort involved in making a choice between budget constraints and rewarding its citizens for exposing themselves to medical injury.

I believe that the balance sheet favors a no-fault system by a considerable margin; no-fault, in fact, allows us to solve the paradox. I find it incomprehensible that the AMA and other physician and hospital associations have not been demanding tort reform along these lines. Surely the benefits are as obvious to their directors as they are to me. \Box

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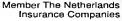
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Who Needs Health Care Reform —and Why

Johnson H. Kelly, MD, and Carolyn R. Thompson, PhD

An increasing number of Americans support health care reform. For them, the most audible call to action has been catchy sound bites such as General Motors' claim that health care costs exceed the price of steel in their automobiles,¹ or Senator Harris Wofford's rhetorical campaign question: If criminals are entitled to a lawyer why shouldn't sick Americans be entitled to a doctor?² If we take a closer and more objective look at health care in the United States, however, the justification for reform remains compelling. In this paper we examine the issues of cost and access that have characterized the debate, as well as that of quality—the variable left out of much public discussion about health care reform.

Rising Costs and Limited Access

Expenditures for health care. Health care costs in the US have been increasing at an alarming rate (Fig. 1, right). In 1965, Americans spent less than \$200 billion (in 1993 dollars) on health care. That total amounted to 5.9% of the gross domestic product (GDP). In 1993 health care expenditures will have exceeded \$900 billion and are expected to reach \$1 trillion in 1994 (15% of the GDP). Recent estimates predict that by the year 2000 nearly 20% of the GDP—one in every five dollars generated in the US—will be spent on health care. This rapid escalation of health care costs is a matter of great concern, especially since national expenditures for food have remained relatively constant at about 10% of the GDP and so have those for transportation at 7.7% of the GDP.

The federal government's share of total health care costs has risen significantly since the implementation of Medicare and Medicaid in 1965. In 1970, total spending for health care represented 7.1% of all government spending; by 1991, health

care expenses had grown to represent 14.3% of the federal budget. In 1998, health care will consume 23.6% of all governmental funds (and the federal government will be paying for more than 30% of all personal health care in the US). Federal health care expenses are growing at an average annual rate of 6.6% (adjusted for inflation). This exceeds the rate of growth for all other categories of federal spending, including defense (1.6% per year), Social Security (2.8%), and even interest on the debt (5.9%). Controlling budget deficits and reducing the national debt of \$4.1 trillion depends, in large part, on controlling projected health care spending.³

Health care expenditures in the US are demonstrably greater than those of other Western industrialized nations. In 1990, the US spent 43% more per capita for health care than Canada, 100% more than Germany and Japan, and 200% more than Great Britain. We spend more money on health care than any other nation in the world. Despite this, we are not leaders in personal health status indicators, and we trail the industrialized word in access to heath care.³

Access to care. The government uses health insurance as a proxy for access to the health care system (even though patients without health insurance have some access for acute illnesses). By this criterion, 37 million Americans with no health insurance have no access, and the number increases by about 100,000 persons per month. In addition, millions more are underinsured for high-cost health care, or defer routine and preventive health services because they cannot afford them. Delays in seeking health care result in poorer health status and subsequently in more expensive treatment costs. Lack of access to sponsored services contributes to the large volume of uncompensated care that plagues American hospitals and health care providers.

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Although policy makers have warned about the rapid growth in the cost of American health care, the US has been the world's leader in spending on health care research and technology for the most of the 20th century. Americans consistently place high priority on compassionate care of the sick and injured and have willingly funded almost all efforts to save lives, limit disability, and to limit pain and suffering. Nevertheless, the current groundswell of discontent reflects a widespread belief that we are not getting adequate value for our health care dollars, especially as compared to other Western industrialized nations. The combination of high costs and limited access, without measurable improvement in our national health status, indicates that some meaningful health care reform is imperative.

Causes of Cost Escalation

The factors that escalate our health care costs are well documented. The include the following:

Technology. The US leads the world in implementing expensive new technology, pharmaceuticals, and the surgical techniques fostered by intensive research and development. In 1989, public dollars funded \$10.2 billion in medical research. The rapid dissemination of new diagnostic tools and treatments, coupled with an insurance system that reimburses all but truly experimental technologies, contributes to rapidly escalating health care costs.⁴

Fee-for-service medicine. Compensation for health care in America has been based on cost reimbursement. This leads to higher spending and inhibits cost control. The health care

market, in which patients are poorly informed about the need for and quality of medical care, encourages reliance on physicians about what is necessary. And the more doctors do, the more they earn.

Lack of consumer responsibility. In 1960, patients paid more than 56% of health care expenses out of pocket; this declined to 27% in 1980 and 21% in 1991. The development of third-party reimbursement for services removed the patient or consumer as a decision maker in the health care equation. Third-party payments (with little or no cost sharing) encourage physicians to prescribe and patients to accept high-cost health care treatment without concern for cost. Expanded coverage and smaller out-ofpocket expenses reduce consumers' incentive to question costs at the hospital. doctor's office, or pharmacy. Because of insurance coverage, the proportion of *consumers*' income spent on health care has remained constant since 1984, with most of the expense going to insurance premiums, which are not very susceptible to consumer pressure.⁵

Litigious climate. The direct costs associated with malpractice insurance and claims represent only 2%-3% of total health care expenditures, but our litigious society has other widespread and costly effects on physician behavior. The practice of "defensive medicine" results in additional expenditures on tests and recordkeeping to avoid malpractice suits. It also results in physician reluctance to treat high-risk patients and thereby restricts access to health care. The malpractice environment inhibits efforts to extend health care and restrain costs.

High-risk lifestyles. Americans' penchant to abuse alcohol, smoke tobacco, eat high-fat diets, avoid exercise, engage in promiscuous sexual activity, and other high-risk behaviors raises our national health care costs. In 1990, the Department of Health and Human Services estimated that smoking cost us \$52 billion a year in health care and lost economic productivity. A 1987 study calculated that alcohol and alcohol abuse cost \$116 billion. The direct costs of treating our growing AIDS population are estimated at \$9-\$16 billion annually, and the indirect costs in 1991 were estimated at \$55 billion.⁶

Aging population. The cohort of children born during the "baby boom" will begin to reach age 65 in 2011. This is important because the per capita costs of health care for those over 65 years old are four times greater than for those under 65. For instance, in 1987, health expenditures for each person over 65 averaged \$5,360 compared to \$745 for those under age 19, and

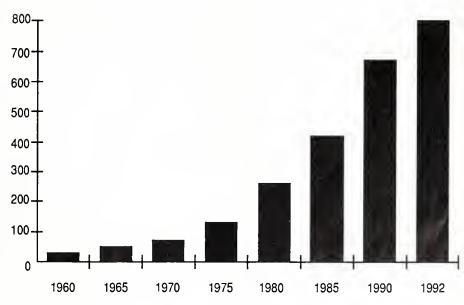


Fig 1: US health care expenditures in billions (unadjusted for inflation). In: Wright J. Universal Almanac 1993. Kansas City: Universal Press, 1993.

\$1,535 for those between 19 and 65. The elderly constitute 12% of the population, but utilize 36% of health care expenditures. Since Medicare finances 63% of health care spending for the elderly, this group produces a disproportionate effect on public funding for health. By 2030, 21% of the population will be over age 65, exerting additional pressure on the health care delivery system.⁷

High expectations. Americans, regardless of age, have come to expect that their health care should know no limitations. The public routinely anticipates "miracles" and, when they fail to occur, the public feels that someone must be at fault. As long as expectations for health

"New developments will not expand medicine's ability or capacity to care for patients unless accompanied by improved outcome at the same or reduced cost."

care are unrealistic, health care costs will never be controlled.

Principles of Health Care Reform

As the debate over health care reform evolved, many citizens expected a simple answer to this very complex problem. Current public antipathy about health care reform may reflect disillusionment that no easy answer has been forthcoming. Sir William Osler is credited with the observation that no matter how difficult or complicated a problem may seem, with enough time, effort, research, energy, and expertise, a simple solution will arise; the disappointment is that the simple solution is almost always wrong. Complex problems usually require complex solutions that can be arrived at only through study, negotiation, and compromise. Because the provision of equitable health care is an enormously complex problem, any credible solution will also be complex. This means that major reform will likely develop in an incremental fashion over time. Incremental reform is a classically American approach that bridges disparate interests and expectations, and the limitation of resources.

The principles of consensus. Getting consensus on reform will be difficult, especially in the face of entrenched special interests. Certain principles should form the foundation for the effort:

- 1. Health care must be affordable for all payers—consumers and insurers, private and public.
- 2. The inadequacies of one payer must not be shifted to become the financial burden of another.
- 3. Health care must be universally available and accessible.
- Insurance packages must be portable, without exclusions for pre-existing conditions, so that Americans can maintain employment mobility without loss of health care benefits.
- 5. A package of basic benefits must be agreed on before

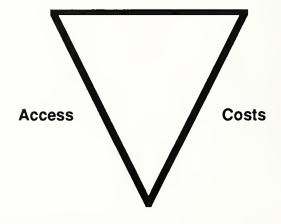
- proceeding with any health care plan.
- Health care providers must be accountable for the outcomes of their practice.
- Incentives for health care providers should encourage improved health of the community, not just an increase in volume of services rendered.
 - There must be credible, detailed outcome data available to permit quality improvement in health care.

Models for health care reform. State and local governments, public agencies, and private and professional associations are currently scrutinizing various options.

Oregon, Minnesota, Kentucky, Florida, and Hawaii have developed plans to enhance access and constrain cost. Single-payer options and global budgeting, modified from Canadian, British, and German health care systems, have been proposed for use in the US. The AMA plan, *Health Access America*, promotes universal access to a basic benefits package for all Americans through a pluralist delivery system of employer-mandated health insurance. The Jackson Hole Group has created a system of "managed competition" that combines tax policy, competition among providers, and outcomes measurement to increase access and control cost. President Clinton's *Health Security Act* is a modification of managed competition. It includes a basic benefits package, mandatory employer coverage, Health Maintenance Organization-like delivery systems, and global budgets for cost containment.

The capabilities of medicine can only be as strong as the national economy. Any strain that medicine places on the

Standard of care



Flg 2: The "Iron Triangle" of health care.10

economy limits its ability to provide care. Therefore, any system for improving health care must include consideration of its cost and its effect on the national economy. The time when our resources exceeded the appetite of medical science and technology has passed. New developments will not expand medicine's ability or capacity to care for patients unless accom-

panied by improved outcome at the same or reduced cost.

The Iron Triangle of health care. Health care delivery systems can be visualized as triangle whose sides consist of: 1) health care access, 2) health care costs, and 3) standard of care (Fig. 2, left). Society can expand any two sides of the triangle, but only

"Only by improving its quality and efficiency can we enhance access to our health care system without jeopardizing the standards of care or raising costs to unaffordable levels."

at the expense of the third. Universal access to health care in our current system would be attainable if cost were not an issue. On the other hand, redefining allocation (often described as rationing health care) would provide high-quality care to selected individuals and limit aggregate expenditures. In some ways the US already implicitly rations health care based on ability to pay. Individuals with money or insurance have access, however, those without coverage must depend on the charity of the delivery system.

Reductions in health care expenditures will necessitate modifications in either patterns of access or standards of care. These forces will always be in dynamic tension. Advocates will emphasize one aspect at the expense of the others. The only way the three will improve together is by improving health care quality. In this sense quality means prioritized, efficient use of resources with minimal waste.

Ensuring the quality of health care. So far the debate on health care reform has revolved around institutional models of change

and structural modifications of the delivery system. Relatively little energy has been spent on issues of quality. Only by improving its quality and efficiency can we enhance access to our health care system without jeopardizing the standards of care or raising costs to unaffordable levels. Health care providers often assume that quality of care is inherent in their practice

patterns. However, systematic research to assess appropriateness of given interventions has increased dramatically in recent years. The results of outcomes and effectiveness research are still far from being universally accepted by the health care industry, and implementation has been impeded by poor communication,

professional skepticism, organizational barriers, and both physician and patient reluctance to change. We need professional education, the financial incentives of prepaid care and precertification procedures, and administrative controls to encourage and enable implementation of practice guidelines.

The methods of continuous quality improvement used in the manufacturing sector have been adapted to enhance the quality of health care. In fact, quality improvement strategies are used by the Joint Commission on Accreditation of Healthcare Organizations as part of its review process. Quality assurance programs run by institutions and peer review organizations have great potential to enhance effective delivery of health care. There are always some who feel that implementing standards of care represents an unnecessary intrusion into health care delivery, but it is a step toward assuring that expectations for access, quality care, and cost containment can be realized. A well-defined commitment to quality at all levels—national, regional and local—means that a significant long-term solution is within our reach.

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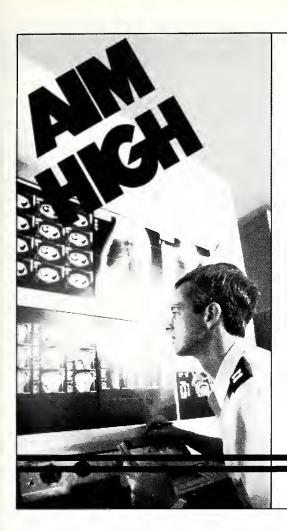
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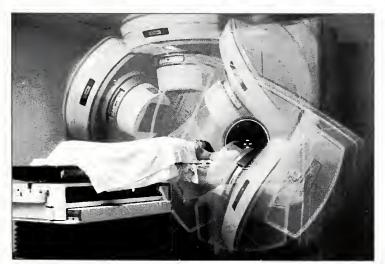
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Aphorisms of the Month

Daniel J. Sexton, MD, Editor

"Doctors, Lawyers, and Clergy Members"

The lawyers are the cleverest men, the ministers are the most learned, and the doctors are the most sensible.

-Oliver Wendell Holmes, 1809-1894

If you woule die fagged to death like a crow with the king birds after him, be a school master; if you would wax thin and savage, like a half-fed spider—be a lawyer; if you would go off like an opiun, eater in love with your starving delusion—be a doctor.

—Oliver Wendell Holmes, 1809-1894

Commonly, physicians, like beer, are best when they are old, and lawyers, like bread, when they are young and new.

—Thomas Fuller, 1608-1661

Jurisprudence and medicine have this in common, that they are humilating to comtemplate.

-B.F. Poggio Bracciolini, 1380-1459

In fine, three sorts of people are sent into the world, purposely to martyrize man in this life; the lawyer torments the purse, the physician the body, the Divine the soul...the Feavor assaults us, the physician kills us, and the priest sings.

—Cyrano de Bergerac, 1619-1655

With the exception of lawyers there is no profession which considers itself above the law so widely as the medical profession.

-Samuel Hopkins Adams, 1871-1958

The art of war is like that of medicine, murderous and conjectural. —Voltaire, 1694-1778

A priest sees them half un-dressed; the doctor sees them naked, they lie to the former; they masquerade before the lawyer; they cannot deceive the discerning physician.

-Martin H. Fischer, 1879-1962

The doctor seen men not at their best as does the minister, nor at their worst, as does the lawyer; the doctor sees them as they are.

—Anonymous

Few lawyers die well; few physicians live well.

-English proverb

Deceive not thy physician, confessor, nor lawyer.

-Italian proverb

Send aphorisms to: Daniel J. Sexton, MD, Box 3605, DUMC, Durham, NC 27710. Fax: 919/684-8358.

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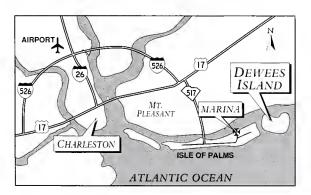
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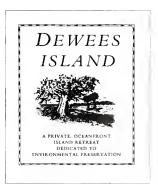
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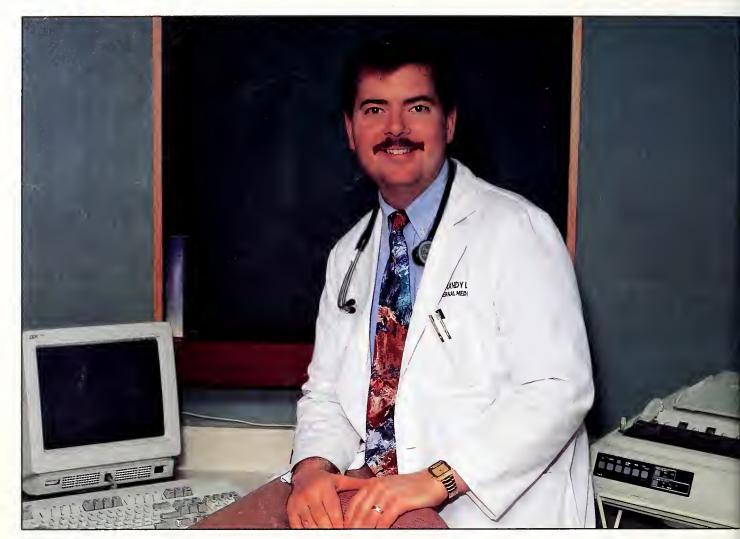
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North Carolina Medical Journal

For Doctors and their Patients

What Happened to Patient A's Heart?



Patient A



Patient B

See "Chest Pain Presenting as Ischemic Heart Disease," page 306

Also in this issue:

Hypertensive Emergencies and Urgencies
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For Doctors and their Patients

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FOR DOCTORS AND THEIR PATIENTS

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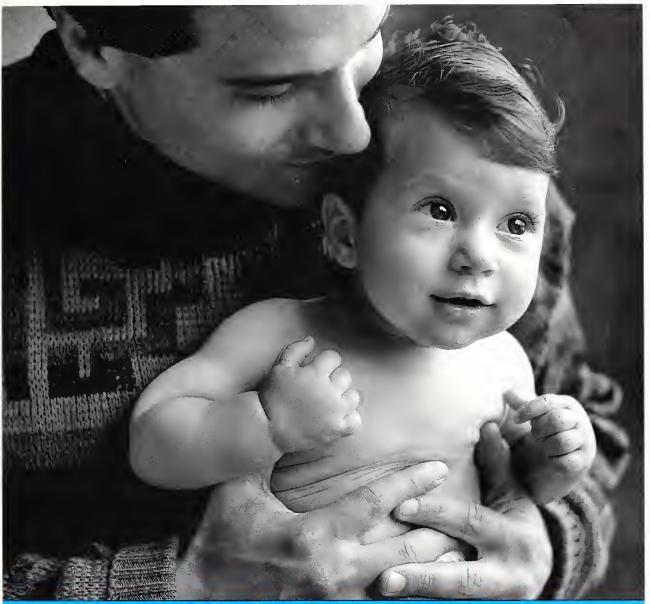
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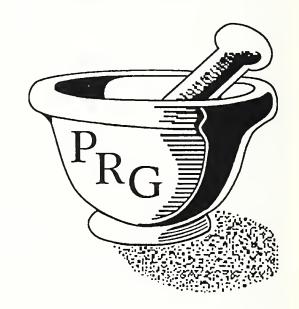
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Letters to the Editor



On Lung Cancer Screening To the Editor:

Thanks to Drs. Wong and Feussner for their excellent review of screening for lung cancer ("Screening for Lung Cancer: It Doesn't Make a Difference," NC Med J 1994;55:37-9). I noted a small typographic error at the bottom of the first column of the first page: 49,000 deaths should have been 149,000.

I have been interested in screening for lung cancer since the 1950s. Recently, 1 co-authored a paper summarizing the Philadelphia Pulmonary Neoplasm Research Project 30 years after the research was begun. This was the first of its kind in the world but we unfortunately did not include a control unscreened group. However, our results were so bad that the conclusion you have reached was obvious.

William Weiss, MD 3912 Netherfield Road Philadelphia, PA 19129

From the Editor:

We are glad that Dr. Weiss enjoyed the article by Drs. Wong and Feussner. We thank him for pointing out the correct number of lung cancer deaths noted in this article, which appeared in the January *Journal*.

Dr. Shuford at Shorter College To the Editor:

I would like to request permission to reprint a large excerpt from the article "Mary Frances Shuford, MD: One North Carolina Physician Who Made a Difference," by Will Durham (NC Med J 1994;55:90-2). We would like to include a condensed version of this piece in an article about medicine at Shorter College from which Dr. Shuford graduated. We will gladly include the proper citations

and send you copies of *The Shorter College Bulletin*, in which the article will appear. The *Bulletin* is distributed to about 5,500 alumni. The article we are planning will highlight Dr. Shuford, another Shorter alumna who became a doctor, and several students who have been accepted into medical school.

Carol Collins
Director of Public Relations
Shorter College
315 Shorter Ave.
Rome, GA 30165-4298

From the Editor:

We are always pleased when others find *Journal* articles worthy of citation. With Mr. Durham's okay, we were happy to grant Ms. Collins permission to excerpt from his article about Dr. Shuford.

Strings Attached

To the Editor:

Bruce Blackmon's piece "Salvaging the Wedding Ring" (NC Med J 1994; 55:161) describes a procedure that I used successfully in my orthopedic practice for 40 years. Rings were routinely removed from fingers distal to wrist or arm fractures using the "string trick" when necessary.

Dr. Blackmon's description of better positioning the patient for maximum drainage of fluids from the finger and of commencing the wrapping of the finger at its tip certainly represent improvement in the procedure compared to the techniques that I used. However, I found that some ring finger proximal interphalangeal joints with osteoarthritis would not compress very much with the string wrapping.

Thus, to avoid impacted rings and avascular fingers, one must have readily available the means of cutting the ring when this technique is attempted. Additional lubrication of the finger with soap solution or KY jelly helps.

As a final suggestion, I always found that "Abracadabra" works better than "Woo-woo-woo-woo."

John Glasson, MD 615 Swift Ave. Durham, NC 27701

To the Editor:

I was pleased to see the handy tip on removing rings from swollen fingers featured on your June cover and in "Letters to the Editor" (NC Med J 1994;55:161). I believe this method would be useful if the swelling is mild. Dr. Blackmon describes correctly that the grasped twine should exit from the proximal edge of the ring. However, the cover illustration may be confusing, since as I looked at it, the twine appeared to exit from the distal edge of the ring.

Emergency medicine physicians frequently use a similar method that is also effective with moderately severe edema. There is one major difference. A few inches of the twine (the best I've found is umbilical tape) is first slipped under the ring from distal to proximal. The distal end of the tape is then wrapped immediately adjacent to the ring and then wrapping continues in the distal direction. When the finger is severely swollen, the procedure may be painful and digital anesthesia may be helpful. Also, with moderately severe edema expect a deep, violaceous hue of the fingertip immediately before ring removal due to the tourniquet effect.

Beverly L. Timerding, MD
Assistant Professor
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Medical Center Boulevard
Winston-Salem, NC 27157-1089

May Musings

To the Editor:

The May Journal certainly was a farranging issue! I read of stuck rings, hot peppers, Nazi medicine, "it-doesn'twork-if-you-don't-take-it medicine," Medicare costs, end-of-life questions, over-the-counter birth control, and of our own roving political reporter Dr. Halperin's latest foray. I must re-read this issue several times.

I liked the cover. Such string tricks are not limited to rings but are also used for fish hooks in places they don't belong. Maybe it is my surgical background and experience on the water that makes me skeptical of the actual utility of both of these methods. It is much more direct to cut away either the ring or fish hook if it endangers an important body part. Fiddling about just doesn't cut it. My fisherman husband (known as "Woo-woo" for reasons even I don't know) cuts out fish hooks when on the high seas, and I, sometimes known as "Maggie," have never had any qualms about cutting off rings that endanger a little limb. We both do it carefully and no one has even been mad at us or lost form or function for the same.

I disagree totally with Dr. Blackmon's letter to the editor about euthanasia (NC Med J 1994;55:160). There are some who have written about "putting down" animals, and I also disagree with them. I couldn't find the reference, but I think *JAMA* ran an article about the repugnance of shooting horses.

The article on Nazi medicine inspired some deep thinking, and I believe is somehow related to the letter on euthanasia. Using ring cutters, pain medicine, and moral, loving support seem better things for us to do as physicians. Empathy and expertise are important as always. Dr. Kevorkian's "way out" reminded me of what Dr. Gardella discussed in his article on Nazi atrocities. Certain other practices now being considered by the government inspire in me the "goose walking over our graves" response. Just how much God-like administrative and ethical baggage is going to be heaped on the nice local doc? We do need to think about the rough, gray, and difficult moral judgments that physicians are being asked, coerced, and pushed to make. We sometimes need to say no—it's tough, not fun.

If cutting off a ring makes a marriage fail, if cutting off pain medication makes us unwitting providers of neo-Nazi medicine; if not thinking, not reading, not talking with each other makes us forget the ideals with which we started Medicine; if just not being real people gets somehow lost in the Jurassic Park of modern life, then our tenure here is for naught.

Margaret N. Harker, MD Chair, Editorial Board North Carolina Medical Journal 3608 Medical Park Court P.O. Drawer 897 Morehead City, NC 28557

The Fault With "No Fault" To the Editor:

I thank Dr. David Grove for his well thought-out and eloquently delivered article, "The Paradox of Perfect Practice" in the June Journal (NC Med J 1994; 55:243-7). After reading it, however, I feel compelled to make a few points about his proposal of a "no fault" injury compensation system for medical malpractice. His theoretical proposals seem to me to mimic very closely the way the workers' compensation system is currently practiced throughout the nation. One of the purposes of the workers' compensation system was to protect employers from excessive suits involving injury at the workplace. Our current work force is provided with compensation settlement for injuries, but the system limits their right to personally sue their employer through the normal legal avenues.

In an orthopedic practice such as mine, a large proportion of patients have workers' compensation claims and injuries. As we know by personal experience and as documented by study after study after study, one of the main things that determines whether patients will recover from their ailments without significant perceived disability is whether or not they have filed a workers' compensation claim.

We all know of patients who, time after time, sustain less than ideal results from our medical treatment or even develop "expected injuries" acquired as we try to solve the initial problem. The vast majority of these patients understand the imperfect nature of medicine, do trust their physicians' intentions and abilities, and do not consider filing malpractice litigation. My biggest concern about a "no fault" injury compensation system is that this would open an accepted avenue for all patients to receive compensation for "injuries" that are an unavoidable part of the current way medicine is practiced. For example, could a patient taking prednisone for chronic lung disease or carcinoma be compensated for the side effects of skin fragility, bone density loss, etc.? Of course, these are all recognized side effects, but they might be called "injuries" the way medicine is practiced now.

I am afraid that a "no fault" malpractice compensation system would open a whole new can of worms similar to that with which our workers' compensation system is now struggling. It is only human nature that patients' perceptions of recovery and injury would be colored by whether they could expect a compensation settlement.

I feel that the best solution to our malpractice problems is to advocate limits and reasonable guidelines in our tort system. However, I sadly agree with Dr. Grove that the benefits being reaped by many of the parties in the current system will most likely block reform for a long time to come.

Anna Voytek, MD Orthopedic Surgery 1910 N. Church St. Greensboro, NC 27405

Worth Noting

To the Editor:

I write to request that you send copies of the "The Paradox of Perfect Practice" by Dr. David Grove (NC Med J 1994;55:243-7) to all members of the Bladen County Medical Society.

Continued on page 294



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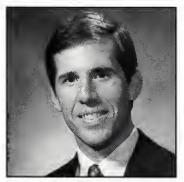
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The Fetal Diagnosis and Treatment Center

A Concept to Improve Prenatal Care

Lewis H. Nelson, III, MD, RDMS, Steven M. Block, MD, Asad U. Sheikh, MD, and Jean Roney, LPN*

The ability of doctors to diagnose congenital malformations prenatally has been improved by the increased availability of ultrasound and several screening tests. One such test involves alpha-fetoprotein (a glycoprotein produced by the fetal yolk sac and later by the fetal liver), which can be measured in the maternal serum. Elevated alpha-fetoprotein levels identify fetuses at risk of having defective closure of the neural tube or other complications of pregnancy. Low levels, when interpreted in conjunction with maternal levels of B-human chorionic gonadotropin and serum unconjugated estriol, increase the sensitivity of detecting chromosome anomalies, especially trisomy 21 (Down's syndrome). The American College of Obstetricians and Gynecologists has stated that maternal serum alpha-fetoprotein screening should be offered to all obstetrical patients. The application of such screening tests, and the use of real-time ultrasound scanning, means that medical personnel are increasingly able to identify fetuses that have congenital malformations.

This increased sensitivity of prenatal diagnosis removes the element of surprise at delivery. Physicians and parents have an opportunity to prepare for the birth of an affected infant or to seek an alternative management. Of course, this early knowledge can be a burden to the patient who must endure the remainder of her pregnancy with considerable anxiety, and to her physician who may not be familiar with the rare malformations identified by these techniques. Even within tertiary medical centers, it is unusual to find a single expert capable of providing the patient with information about all aspects of a malformation—genetics, obstetrical, neonatal, and surgical considerations, and long-term prognosis.

In the past, members of the health care team coped with the problem as best they could, helping the patient to the best of their ability. When pediatricians and neonatologists were unaware of a problem until delivery, the result was uncoordinated management, shocked and distressed parents, and treatment delays. Parents often had to make decisions about complex issues quickly so that treatment could proceed. The press of time impeded real informed consent and rational thinking—leading to further stress in an already difficult situation. And sometimes management was uncoordinated, not from lack of effort, but from lack of knowledge about the fetal defect or where to find expert help for it.

To improve patient care and avoid some of the above issues, we began a coordinated effort three years ago at the Bowman Gray School of Medicine to focus the skills of all specialties involved in the care of these patients. We describe in this paper how we organized the center and how we have functioned during the past three years.

Personnel

Logic and the legacy of past experiences determined which personnel should be involved in a fetal diagnosis and treatment center. The two physicians concerned with the immediate care of a patient with a problem pregnancy are the obstetrician and pediatrician (and their counterparts at the tertiary center, the perinatologist and neonatologist). In general, patients are referred to a perinatologist known to have expertise relevant to a given prenatal diagnosis. The neonatologist helps manage

The authors are with Department of Obstetrics and Gynecology, Section on Maternal-Fetal Medicine, and the Fetal Diagnosis and Treatment Center, Bowman Gray School of Medicine, Medical Center Boulevard, Winston-Salem 27157-1066. *Contact Ms. Roney, center coordinator, at 910/716-7690 or fax 910/716-6937, with any inquiries.

newborns with complex medical or structural problems. Once an anomaly (or a positive screening test indicating an increased risk of anomaly) has been detected, the perinatologist evaluates the patient; subsequent counseling and referral depend on the nature of the anomaly or risk.

The skills of the genetic counselor, geneticists, and genetic laboratory are used to explore the ramifications of findings from the patient's history, ultrasound studies, or screening results. Good genetic counseling is particularly important because it allows the patient to reach a decision based on informed consent. As the prenatal evaluation proceeds, the patient can benefit from discussions with experts who have managed babies with the particular defect in question. On occasion, especially with complex malformations, more than one specialist may be involved.

Because patients come from many different areas, have different social and economic needs, and are referred by practitioners with different skill levels, a center coordinator facilitates care of the patient by arranging appointments, keeping records, and scheduling follow-up consultations. Physician-to-physician contact is also aided by the coordinator and through a toll-free telephonic Physicians' Access Line (PAL). Also available is a social worker who can arrange services, coordinate visits and transportation, and provide supportive counseling to the patient and her family.

At delivery, a neonatologist is present to provide immediate care to the affected infant and to help coordinate subsequent management. The diagnosis determines which specialists ought to be involved. This requires the availability of specialists capable of coping with congenital malformations of nearly all organ systems.

Equipment and Procedures

Ultrasound is the imaging technique most commonly used in diagnosis and treatment of congenital malformations. It can be used as either a primary tool or as an adjuvant to other diagnostic or therapeutic procedures. In any case, it was clear that the center would need the equipment to carry out even the most recently developed imaging and ancillary ultrasound studies. The role of other modalities, such as magnetic resonance imaging, is still being evaluated.

We recognized that center personnel should have experience in invasive procedures related to fetal diagnosis and treatment. Personnel would need to be able to perform chorionic villus sampling, early and late amniocentesis, percutaneous umbilical cord sampling, fetal cardiocentesis, aspiration of fluid from fetal compartments, and, in rare cases, in utero catheterization of fetal compartments for shunting procedures. In the ideal case, a center would provide direct fetal surgery as well, but until those techniques are proven, patients who need direct fetal surgery can be referred to the very few institutions investigating such procedures.

In addition to these skills, center personnel need to be

capable of integrating new procedures and techniques as they become applicable to prenatal diagnosis. And, of course, there must be ready access to intensive care units for both mother and neonate.

Making Services Available

Many of the services provided by a prenatal diagnostic center are not supported by third-party reimbursement. This may impair access to the program for some patients. Such uncovered services include: pre-admission tours to familiarize patients with neonatal intensive care units and the process of labor and delivery, pregnancy counseling, genetic counseling, antenatal conferences with specialists who will be involved in neonatal care, and some diagnostic procedures. The center must have mechanisms for providing care to all referred patients regardless of insurance coverage.

Implementing Our Concept

Acting on the theoretical considerations and guidelines outlined above, we organized the Fetal Diagnosis and Treatment Center at Wake Forest University Medical Center in 1989. The center uses facilities of the Bowman Gray School of Medicine, North Carolina Baptist Hospital, Brenner Children's Hospital, Reynolds Health Center, and the Women's Center of Forsyth Memorial Hospital. A perinatologist and a neonatologist were selected as co-directors because of their interests and the fact that they represent the professionals who initially contact the mother and baby. Many team members shared in the development effort despite lack of immediate salary support or reimbursement for their professional services.

The role of the center coordinator was initially assumed by a first-year fellow in Maternal-Fetal Medicine, but the time required to carry out this job exceeded our estimates and a nurse was appointed as full-time coordinator. The coordinator receives referral calls, schedules patients, maintains active patient files, arranges appointments with other members of the center, follows up suggestions made at a weekly center conference, obtains outcome information, and helps continuity of care.

Among the motivating factors and rationale for this center was the desire to improve communication among the health care workers. To meet this goal, we hold a weekly conference at which we present and discuss all new cases and review videotapes of the ultrasound findings. We also discuss the course of previous cases. This conference educates the members about issues confronting other specialties. It allows us to arrange coordinated visits and thus save patients multiple trips, often from long distances. Controversies in management are reviewed and debated. As a result, the patient receives a consistent management plan that avoids the ambiguities that can arise from multiple opinions. Every effort is made to

involve the patient's social supports, provided she gives permission. Table 1 lists the personnel involved in the center.

A Snapshot of Our Results

During the past three years, the center has provided care to 241 patients. Table 2 lists the medical problems encountered by organ systems involved and gives the number of cases of each that we have seen. We have carried out 122 invasive procedures: 91 amniocenteses, 19 percutaneous umbilical cord samplings, two placental biopsics, and one placement of a thoracoamniotic shunt. Twenty babies with abnormal karyotypes were identified (not all patients desired amniocentesis). Table 3, at right, summarizes the outcomes in 50 prenatally diagnosed singleton pregnancies with congenital anomalies of the nervous system for whom we have follow-up data.¹

We present three cases to illustrate the impact that the center has had, not only on patient care but also on members of the center.

Case 1

AM was a 2.68 kg female infant with idiopathic, non-immune hydrops fetalis. There were multiple possible causes for this accumulation of fluid in the fetal chest, abdomen, and skin, the most familiar of which was Rh incompatibility, but the cause in AM's case was unknown. The infant was born after 35 weeks gestation to a 28-year-old, gravida 3, para 2 mother. The mother's second pregnancy had ended with the intrauterine demise of the fetus (who also had idiopathic hydrops) at 24 weeks gestation. Her first pregnancy had been normal.

The mother had been told that the risk of recurrence was low, but fetal hydrops was diagnosed at 31 weeks gestation in the third pregnancy at the onset of preterm labor. Tocolytic drugs were given to stop uterine contractility because, in the opinion of the multidisciplinary team at the Fetal Diagnosis and Treatment Center, delivery at 31 weeks would likely lead to the death of the infant from hydrops and prematurity. A neonatologist and a social worker met with the parents to discuss the likely needs of the baby. During a tour of the intensive care areas, the parents met the nurses who would care for their baby.

Labor recurred at 35 weeks. Because the case had been reviewed at our weekly conference, the neonatologists were well informed and prepared for the delivery. The parents, knowing the prognosis and management, were aware of the procedures to be performed in the delivery room. At delivery, they dealt with the situation calmly, and with unusually focused and rational thinking. Baby AM was hydropic at delivery, and had Apgar scores of 2 and 5 at one and five minutes, respectively. Following tracheal intubation and mechanical ventilation, bilateral chest tubes were placed and 60 mL of fluid

Table 1. Fetal Diagnosis and Treatment Center team members

Directors (a Perinatologist and a Neonatologist)

Coordinators

Perinatologists

Neonatologists

Geneticists (clinical; laboratory; counseling)

Pediatric Cardiologists

Pediatric Neurosurgeons

Pediatric Surgeons

Pediatric Urologists

Registered Diagnostic Medical Sonographers

Social Workers

Table 2. Specific organ system involvement— July 1990 to June 1992

System involved with abnormality*	Number of case
Central nervous system	66
Cardiovascular	16
Gastrointestinal (includes ventral wall)	37
Genitourinary	57
Skeletal	16
Lymphatic	29
Amniotic fluid	5
Placenta	5
Twins	5
Growth	5
Total	241

 Central nervous abnormalitles: neural tube defect, hydrocephaly, intracranial mass.

Cardiovascular: abnormal chamber size, rate, rhythm. Gastrointestinal: duodenal atresia, diaphragmatic hernia, omphalocele, gastroschisis.

Genitourinary: renal dysplasia, bladder and renal outlet obstruction.

Skeletal: teratoma, fractures, short limbs, talipes. Lymphatic: hydrops, ascites, cystic hygroma. Amniotic fluid: oligohydramnios, polyhydramnios.

Placenta: masses, anechoic lesions.

Twins: twin-twin transfusion, fetal death of one. Growth: intrauterine growth impairment, symmetrical and asymmetrical.

removed. The baby was then transferred to the intensive care nursery.

AM had a severe respiratory illness that required treatment with conventional and high frequency jet ventilation. During the several occasions when the infant's condition was critical and possibly terminal, the relationship that had developed between parents and neonatal unit staff supported efficient and calm communication. Decisions did not require the lengthy

explanations that are often necessary when relationships have just been established and the subject material is new and technically complex.

Infant AM was gradually weaned from ventilator support and discharged from the nursery at two and a half months of age. An extensive work-up did not reveal a cause for the hydrops. Persistent lymphedema of her right leg, which has now resolved, suggested the possibility of a lymphatic malformation. She has continued to thrive and gradually has been weaned from supplemental oxygen.

Case 2

CW, born at 31 weeks gestation and weighing 1.1 kg, was the child of a 35-year-old, gravida 2, para 1 woman with Sjögren's syndrome, a condition frequently associated with congenital heart block in offspring. The pregnancy was uncomplicated until 20 weeks gestation when the fetal heart rate was found to be 60 beats per minute (bpm). The likely diagnosis was complete heart block secondary to maternal anti-Ro and anti-La antibodies. A complete cardiac evaluation of the fetus was recommended by the Fetal Diagnosis and Treatment Center to rule out other causes of severe fetal bradycardia. A pediatric cardiologist and perinatologist performed a fetal echocardiogram, confirming normal cardiac anatomy. Together they discussed with the parents the treatment of this preterm infant. The parents were advised that the infant would require transvenous electrical cardiac pacing and a permanent pacemaker after stabilization. The parents also toured the intensive care nursery and met the staff.

Initially, the plan was to observe the fetus in utero and intervene only if there were signs of cardiac decompensation. At 28 weeks gestation the fetal heart rate decreased to 48 bpm but cardiac contractility was sufficient to provide adequate cardiac output. The fetus remained well and continued to grow until 31 weeks gestation when a small pericardial effusion was noted by ultrasound. An emergency cesarean delivery was performed. The 1100 gram male infant had Apgar scores of 7 and 7 at one and five minutes respectively and his heart rate was 35 bpm. An infusion of isoproterenol increased the heart rate to 48 bpm. The trachea was intubated, and the infant was ventilated and treated with surfactant because of hyaline membrane disease.

At two hours of age a transvenous pacing wire was inserted and the heart paced at a rate of 100 bpm. The patient's blood pressure stabilized and his perfusion improved. He continued to improve after three days of relatively high ventilator settings. A permanent pacemaker was implanted on the sixth day, but the infant required mechanical ventilation for 19 days and developed mild chronic lung disease and gastroesophageal reflux. He was discharged from the hospital at 10 weeks of age on 100 mL/min. of oxygen by nasal cannula. Since discharge he has grown well and has been weaned from oxygen.

Case 3

A 39-year-old woman in her fourth pregnancy was referred to The Fetal Diagnosis and Treatment Center at 31 weeks gestation because of an ultrasound diagnosis of fetal hydronephrosis. An ultrasonogram at the center confirmed that the right kidney was hydronephrotic with a dilated ureter. The left kidney was less affected. Male genitalia and an adequate volume of amniotic fluid were seen.

The case was presented at the center conference. The patient and her husband saw the pediatric urologist for counseling. Because there was no reason for the patient to be delivered at a tertiary hospital, plans were made for delivery by her own obstetrician at her home hospital. Plans were also made for repeat ultrasound examinations during pregnancy and for subsequent postnatal investigation of the infant. Fetal sonograms showed stable amniotic fluid volume and normal fetal kidneys.

Table 3. Outcomes of 50 prenatally diagnosed singleton pregnancles with various congenital CNS anomalies

Number of fetuses	Outcome
37	
	Terminated
3	Carried to term Terminated Stillborn
1	Terminated
8	
3	All shunted by age six months
1	Followed with exams and CT
s 1	Terminated
1	Normal CT scan postnatally
5]	Stillbirth, multiple anomalies
1	Expired, multiple anomalies
5	
1	Spine reconstruction at one year of age
1	Trisomy 21, terminated at 23 weeks
1	Operated at three months of age
1	No treatment
r 1	Neuroepithelial ganglioglioma, operated at five months of age
	18 13 3 2 1 8 3 1 5 1 1 5

At term, a morphologically normal male weighing 3.5 kg was delivered. He had Appar scores of 8 at both one and five minutes. On physical examination a distended bladder was palpated. A voiding cystourethrogram showed a thickened, trabeculated bladder wall and posterior urethral valves, and renal ultrasound showed marked hydronephrosis. He was admitted to Brenner Children's Hospital Intensive Care Nursery and percutaneous ureterostomies were placed. He subsequently had closure of the ureterostomies and transurethral resection of the valves, and is now doing well.

Comments

Early diagnosis and planned management of any disease is an advantage to the patient. In the case of fetal anomalies, early identification and management offer substantial benefits-to both fetus and parents. The fetus benefits from the availability of focused and expert medical care, certainly from the moment of delivery and sometimes before in the form of fetal therapeutic procedures. The parents benefit from the knowledge they acquire during conferences with subspecialists and from any reading materials they receive that are related specifically to the

fetal diagnosis. They also benefit by being prepared for the grief that necessarily accompanies the diagnosis of a birth defect.

Parents rarely have the background or information that would allow them to choose the

most appropriate subspecialist to treat a given defect. Because of the relative infrequency of congenital malformations, few pediatric or medical subspecialists in any geographic area have the required expertise. Meeting a specialist before the emergency occasioned by an affected baby's birth familiarizes the parents with the specialist, establishes a doctor-patient relationship and, hopefully, the trust needed for good care. Furthermore, the parents, most of whom have never been exposed to neonatal intensive care units, are much less anxious after they have had an opportunity to tour the unit and meet the staff before the birth of their baby.

It is often advantageous to have affected fetuses delivered at a tertiary center in order to facilitate early management of the newborn after delivery. We may recommend this even if the fetus has a lethal anomaly because difficulties in obtaining adequate autopsies in smaller hospitals can adversely affect the postnatal conference with parents. An accurate diagnosis is essential to the counseling process, particularly when there has been a fetal or neonatal death, because genetic counseling is often part of the follow-up management after a loss. Postnatal counseling at our center is generally done by the staff who were involved in the initial care—the obstetrician who treated the mother and the relevant pediatric specialist. The ability to help patients cope with the grief surrounding an unfortunate outcome is enhanced by the special interest and expertise available through the center.

Although deaths occur, it is more likely that the fetus will survive. In advance of delivery parents are encouraged to meet and receive counseling from the physicians who will be involved in the management of their baby. Parents then have time to understand the malformation and the effects it will have on their infant's health. They can evaluate treatment options, often days or weeks before delivery. They can also actively deal with the grief associated with their changed expectations for the child. Guilt is a common symptom of this grief. We can realistically inform the mother about the likely cause of the anomaly, and we can usually reassure her that she is not the cause of the problem.

The multidisciplinary group meetings at the center allow members' diverse experiences to positively influence clinical decisions. The primary physician gets automatic and free consultations from experts such as perinatologists, neonatologists, geneticists, and a variety of pediatric medical and surgical consultants. Rational treatment plans, individualized for each fetus, can be formulated and instituted—as shown, for example, by one of our cases in which treatment of a fetus with unilateral hydrothorax was required in utero. The insertion of a catheter

"The multidisciplinary group meetings

at the center allow members'

diverse experiences to positively

influence clinical decisions."

into the fetal chest allowed fluid to drain from the affected side

these complex cases benefit from input by many experts. In a particular case, obstetrician, neo-

into the amniotic cavity, probably saving the life of the infant. There is no question that

natologist, pediatric surgeon, geneticist, and a genetic counselor may be involved as well as the intensive care nursery nurses and social worker. There is always great potential for confusion when many experts are involved in counseling. The center provides a uniform approach because the case is discussed at the center conference and all members of the health care team are aware of management plans. The parents do not receive conflicting, confusing, and sometimes erroneous information.

The opportunity for parents to see the environment in which the infant will be treated substantially decreases their anxiety when their own baby must enter the neonatal intensive care unit. They are able to meet the nurses and the unit social worker before delivery, giving them a sense of familiarity. This entire process helps convert the experience from that of dealing with an emergency to one similar to an elective procedure.

The advantages that accrue to the parents also accrue to the referring physician who, in many cases, can continue as the primary obstetrician for the family. Frequent contact with center personnel makes the referring physician an important part of the team, provides the specific knowledge needed to manage the patient, and also provides continuing educational opportunities not routinely available to community-based physicians. On the other hand, delivering a baby in a tertiary care center may disconnect a mother from her usual support systems,

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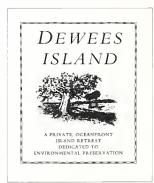
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The Role of CARE (Comprehensive Autopsy Review and Evaluation) in a Prenatal Diagnosis Program

Jeffrey A. Kuller, MD, M. Calhleen McCoy, MD, D.J. Pappas, MEd, Beth Lincoln-Boyea, MS, Jennifer J. Helwick, MS, Carla Boor Smith, MS, and Nancy C. Chescheir, MD

Prenatal diagnosis is an integral component of obstetrical care in this country. There is more to it than simply "diagnosis" though, since the services that are needed encompass a wide spectrum of areas from invasive fetal diagnostic testing to genetic counseling. The latter component is essential for couples who have a family history of inherited conditions or who have had a previous pregnancy characterized by an abnormal fetal karyotype or structural abnormality. In addition, women who will be 35 or older at the time of delivery need to discuss the risk of chromosome abnormalities. And women who have become isoimmunized to erythrocyte or platelet antigens require extensive counseling and a clear fetal diagnostic plan in order to avoid fetal hydrops or fetal intracranial hemorrhage.

Presently, prenatal diagnosis relies largely on detailed ultrasound examinations and the measurement of maternal serum alpha-fetoprotein, human chorionic gonadotropin, and unconjugated estriol. An invasive fetal evaluation needs to be available when indicated on the basis of abnormal non-invasive tests or the patient's genetic history. The evaluation may include amniocentesis, chorionic villus sampling, placental biopsy, or fetal blood sampling. The specific invasive procedure to be chosen is based on information needed about the fetus—karyotype, blood type, DNA analysis for single gene disorders, hematocrit, or the presence or absence of infection.

Beyond diagnosis, it is important to pregnant women and their families that a comprehensive network be available to support those contemplating prenatal diagnosis and especially those who are found to have a fetal abnormality. We describe in this paper the comprehensive program that we have initiated.

Initiating CARE

The University of North Carolina at Chapel Hill is one of the largest referral centers for prenatal diagnosis in the state. During the 1992-1993 academic year, more than 5,000 ultrasound examinations and 16,000 maternal serum screenings were performed, and 960 invasive procedures were undertaken.

In November 1992, we began a comprehensive approach to patient care centered around a bi-weekly conference referred to as CARE (Comprehensive Autopsy Review and Evaluation). At this conference, we discuss patients who have been prenatally or postnatally diagnosed as having an anomalous fetus or infant or who have had a fetal or neonatal loss from an obstetric or medical complication. The conference format allows us to discuss ongoing cases in which there is a fetal anomaly as well as cases in which the pregnancy has been completed.

Three maternal-fetal medicine specialists with expertise in obstetric ultrasound form the core personnel at the conference. One of the three is also a board-certified clinical geneticist. Three board-certified genetic counselors, two ultrasonographers, and a master's level grief counselor also attend. Maternal-fetal medicine fellows, obstetrics and gynecology residents, and third- and fourth-year medical students play an active role. When appropriate, pediatric dysmorphologists, pediatric surgeons, neonatologists, and other subspecialists are invited.

Each case is reviewed until we reach a consensus. In ongoing cases, we discuss details of obstetrical management including timing and route of delivery, and whether or not the patient should deliver at a tertiary care center. The prenatal

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ultrasonogram and fetal karyotype are thoroughly reviewed. When appropriate, we arrange for the pregnant woman and her family to meet with a pediatric surgeon, neonatologist, or pediatric subspecialist. A grief counselor also meets and integrally participates with the family.

In completed pregnancies, we discuss the findings from autopsy (if performed), and the fetal or pediatric dysmorphology examination. We evaluate risks of recurrence, preventive measures (such as folic acid supplementation), the options for prenatal diagnosis in future pregnancies, and assess the family's grieving and coping.

Our group members also initiate discussions of patients who have had a stillbirth or the immediate neonatal death of an apparently normal infant. We assure that all medical informa-

tion—karyotype, autopsy report, and placental pathology—is available for the follow-up visit.

We may recommend low dose aspirin for subsequent pregnancies after one complicated by severe preeclampsia, frequent cervical examinations for subsequent pregnancies after an episode of preterm labor, and cerclage placement or frequent endovaginal ultrasound for suspected cervical incompetence.

Each patient or couple is invited to attend a session in

invited to attend a session in which (when possible) the attending obstetrician, the resident primarily involved in the prenatal care, and a grief counselor review the findings from the CARE conference. Detailed medical information as well as an estimated risk of recurrence and our recommendations for future pregnancies are sent by letter to the referring physician and the patient. When the patient has been unable or unwilling to return for this review, a similar letter is still sent to the patient and her obstetrician.

The comprehensive nature of the Comprehensive Autopsy Review and Evaluation program allows improved continuity of care and patient satisfaction. Fellows, residents, and students benefit from learning how to better counsel and support affected couples. Ongoing grief counseling and referral to support groups is done by our grief counselor and genetic counselors who make follow-up phone calls intermittently throughout the first year of the pregnancy loss.

Progress Report

Since we began our program, more than 100 patients have been discussed at CARE conferences. Approximately 25 have returned for follow-up visits. Patients are routinely contacted one week after the conclusion of their pregnancies, at approximately one month and eight months after their pregnancies, and at the anniversary of their delivery or pregnancy termination.

The Art of Caring

"To provide continuity of care,

decrease costs, and still offer both

medical information and emotional

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with pregnancies complicated

by congenital abnormalities receive

follow-up genetic counseling by

the same group of health care

providers who were involved in

the prenatal diagnosis."

Although the science of prenatal diagnosis is rapidly expanding, the art of caring for these patients is often less than

adequate. It is imperative that prenatal diagnosis programs recognize and respond to the psychologic consequences of antenatal fetal evaluation, especially in patients identified as having fetal anomalies.1 A recent study of the reactions of women who had a second trimester termination of pregnancy for a fetal abnormality found that intervention by an experienced grief counselor was undoubtedly helpful. Most patients were very positive about this support and stated that without such help

they might not have been able to cope with their loss.2

To provide continuity of care, decrease costs, and still offer both medical information and emotional support, it is preferable that patients with pregnancies complicated by congenital abnormalities receive follow-up genetic counseling by the same group of health care providers who were involved in the prenatal diagnosis. Asking a new group of care givers (say, a pediatric genetics clinic) to assess the risk of recurrence and options for prenatal diagnosis in subsequent pregnancies can be difficult for patients. Because we have an obstetrical geneticist and our own group of genetic counselors, we can continue the relationship with the patient that we established prenatally.

A high-risk obstetrical program does not end with diagnosis of a fetal anomaly or delivery or termination of pregnancy. Excellent medical knowledge and technical expertise, complemented by compassionate and continued genetic and psychologic counseling, helps the patient, her partner, and her family.

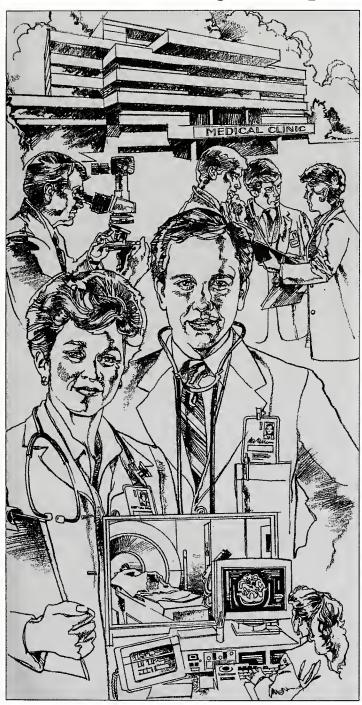
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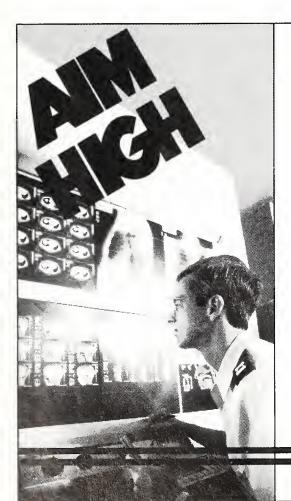
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How Primary Care Physicians in North Carolina Assess and Counsel Their Diabetic Patients

James Magner, MD, Sue B. Daughtry, RD, LDN, MS, CDE, Eugene Lengerich, VMD, MS, and Georjean Sloodt, MD, MPH

The Diabetes Control and Complication Trial (DCCT)1 confirmed that careful control of blood sugar-by attention to diet, exercise, insulin regimen, home glucose monitoring, and other means—benefits patients with Type I (insulin dependent) diabetes mellitus. The DCCT found that keeping the blood sugar close to normal substantially reduces or delays the onset and progression of diabetic retinopathy, nephropathy, and neuropathy (although at a price in the form of more frequent and more severe hypoglycemia). Many authorities now believe that "tight" control of blood glucose will benefit patients with Type II (non-insulin dependent) diabetes mellitus as well, although this point is not yet proven.

It is important to note that the "intensive therapy" used to achieve the good results of the DCCT did not consist merely of more insulin or more frequent insulin administration. Rather, it relied on a behaviorally oriented approach that encouraged patient-managed manipulation of diet and other factors as well as insulin. In fact, one could argue that it was the proper education of diabetic patients by an accessible, involved, and supportive diabetes management team that produced the good results of the DCCT.

In North Carolina, primary care physicians play important roles in assessing and counseling patients with diabetes mellitus and are, therefore, key elements in any strategy to improve diabetes care. We report here the results of a survey, conducted before the results of the DCCT were announced, that provides insight into the diabetes care practices of primary care physicians in North Carolina.

Methods

During 1991, the North Carolina Department of Environment, Health, and Natural Resources, the University of North Carolina at Chapel Hill, and the Centers for Disease Control and Prevention surveyed North Carolina primary care physicians (general practitioners, family practitioners, internists, and obstetrician/gynecologists) regarding their counseling and referral practices. Survey methods and results from portions of the survey dealing with treatment of patients who smoke, abuse drugs or alcohol, or have diet- or nutrition-related problems have been published.²

This report concerns the questions physicians were asked about the numbers

of Type I and Type II diabetic patients they treated, about how they assessed and counseled these patients, and about their beliefs regarding patient education and logistical and reimbursement issues related to diabetes care. Eight hundred and seventy-eight physicians were surveyed, and 517 (59%) responded; 90% were white; 87%, male; and 72%, board certified. The mean age of respondents was 47 years (range 26-87 years) and the mean percentage of professional time that they spent providing patient care was 86% (range 10%-100%). Survey responses were weighted so as to be generalizable to primary care physicians in these specialties in North Carolina.

Results

Four hundred and twenty-three of the respondents (83%) reported that they treated diabetic patients (Table 1, next page); the results we report here are derived from the 423 physicians who treated diabetic patients. More than half of the practitioners saw four or more Type I diabetic patients per month and at least 20 Type II patients per month.

As Table 2 shows, (next page) 45%

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of respondents stated that nearly all (95% or more) of their Type I patients self-monitored their own blood glucose, and three-quarters of respondents said that at least 50% of their patients did. The situation was very different for Type II diabetics: less than 10% of the physicians reported that 80% or more of these patients self-monitored blood glucose and about one-third said that 50% of their patients did.

Table 3, at right, summarizes physicians' responses to questions about specific facets of diabetes care. The percentages of physicians who examine eyes, feet, and blood pressure on the initial visit were 79%, 72%, and 84%, respectively; and 80% said they assessed patients' medications. Less than two-thirds of physician respondents said that they assessed vision, measured urine glucose or ketones, determined hemoglobin A1, or reviewed home glucose records at the initial visit. Particularly low was the percentage of doctors (40%) who reviewed guidelines for self-care of diabetes during intercurrent illnesses ("sick days").

Perhaps not surprisingly, the percentage of physicians carrying out these care items fell during "problem visits" (when the focus of attention is on the problem prompting the visit). For most items the percentage of physicians who carried out each was lower during regularly scheduled visits than at the initial visit (Table 3).

Physicians' attitudes and beliefs. More than 95% of respondents agreed or strongly agreed that patient education improves control of blood glucose, that exercise is an essential part of the medical treatment plan, and that detailed nutritional counseling is an essential part of any treatment plan. But only 67% agreed or strongly agreed that sick day guidelines are essential to the treatment plan, and only 42% of the physicians agreed or strongly agreed that most patients can be trusted to adjust their own insulin dosage. About 40% of respondents agreed or strongly agreed that patients need to attend a program taught by a specially trained educator if they are to self-manage their diabetes.

Factors that interfere with self-care and the delivery of health care. About one-quarter of respondents felt that many patients are capable of self-care but are noncompliant. Nearly one-third believed that insufficient time in contact with the patient was always or almost always an important problem. Some 35% believed that they always or almost always received inadequate reimbursement for diabetes assessment and counseling, and 90% believed that inadequate patient finances were often a problem. About one-fifth of

physicians felt that lack of patient social support was always or almost always a significant problem. Only 10% of the physicians said that lack of patient educational materials was a problem; 31% felt that a lack of educational materials for patients with low literacy skills was.

Discussion

This study has several limitations. The survey findings represent self-reported data that were not validated by medical chart review or patient follow-up. Nor did our target audience include pediatricians, who are important for the treatment of children with diabetes. Finally, the study was carried out prior to the release of the results from the DCCT study, which has important implications for the management of diabetes.

In spite of their limitations, our results provide an interesting snapshot of how North Carolina primary care physicians assess and counsel patients with diabetes. In view of the recent DCCT study with its emphasis on the need for patient education, intensive diet/exercise/

Table 1. Care of diabetic patients by primary care physicians in North Carolina—1991

Physicians reporting

Physicians

Physician treats ≥ one diabetic patient/month: 83%

Physician treats > four Type I patients/month: 42%

Physician treats ≥ 35 Type II patients/month: 25% Physician treats ≥ 20 Type II patients/month: 42% Physician treats > 10 Type II patients/month: 66%

Table 2. Use of home glucose monitoring by primary care physicians in North Carolina—1991

	reporting
Type I diabetics: ≥ 95% of patients self-monitor ≥ 50% of patients self-monitor	45% 75%
Type II diabetics: ≥ 80% of patients self-monitor ≥ 50% of patients self-monitor	< 10% ≈ 33%

insulin regimens, and home glucose monitoring, we offer the following comments:

The underutilization of home glucose monitoring. Self-monitoring of blood sugar does not appear to be used enough in North Carolina, especially for Type II patients. It is a must for nearly all Type I patients and can be advantageous for Type II patients. When coupled with good diabetes management instruction, multiple accurate blood glucose readings enable patients and physicians to make informed decisions. Patients can make appropriate adjustments in medication and food intake corresponding to the variations and choices inherent in daily life. Without the feedback loop of home blood glucose monitoring (and the knowledge and skills to adjust medication and diet based on that feedback), treatment options are more limited and consistent control less probable. Without the feedback loop, patients must order their daily lives to conform to prescribed amounts and timing of medications, food intake, and activity—the same each day. People simply don't live this uniformly and would have great difficulty in doing so. In addition, factors such as illness, stress, and hormonal changes, which influence glucose levels but cannot easily be predicted, can be compensated for by home glucose measurement.

The underutilization of home blood glucose monitoring may be explained in part by our finding that fewer than half of the physicians trusted patients to make changes in their insulin regimens, and by other factors such as lack of contact time with patients, the perception of inadequate reimbursement, and lack of multidisciplinary programs or educational tools with which to effectively teach patients to manage diabetes.

The role of patient education. One lesson of the DCCT is that intensive monitoring and self-management is required to achieve consistently better glucose control. Despite this, less than half of our respondents believed that patients need teaching by a specially trained educator in order to become competent in selfmanaging diabetes. We speculate that if more physicians expected their patients to self-monitor their glucose, and to selfadjust their diet and medications on a day-to-day basis, then physicians would value the role of such an educator. For example, about one-third of the survey respondents indicated uncertainty about the importance of sick day guidelines in

patient education. But basic instructions (see Appendix, next page) can help patients manage diabetes during minor illnesses. Educators can relieve the time pressure on physicians by teaching patients to use such aids.

Diabetes education and intensive management of diabetes are labor intensive, but reimbursement for these services is presently very poor. The expenses of improved control relate mainly to the time and labor component and the costs of glucose testing strips. Who will pay for the required personnel (dietitians, nurse educators, physician time) and reagents? Society needs to consider how to provide doctors with the help they need, with more time for patient contact, and with

better reimbursement for diabetes education. In addition to physicians, the DCCT diabetes management teams included nurses, dietitians, and behavioral specialists. Not every primary care practice needs or could support a full-time team. But since 83% of primary care physicians treat patients for diabetes, the availability of community-based multidisciplinary diabetes management teams (for instance, in local health departments) could make a significant impact on diabetes control.

Social support of diabetic patients. Lack of patient social support was identified as a problem. Clinic sessions involving families might aid meal planning and other aspects of care. Our survey suggests the need for more educational materials tailored to patients with low literacy. Also, some patients were identified as capable of self-care but noncompliant, perhaps indicating that a patient's attitude, knowledge, motivation, financial means, and social support must all be in place for optimal diabetes management to occur.

The implications for Type II diabetes. The DCCT proved that intensive control of Type I diabetes helped delay the onset and progression of retinopathy, neuropathy, and nephropathy. It seems reasonable to extrapolate these results cautiously to Type II patients. Caution is

in order because older patients with coronary disease, for example, may tolerate hypoglycemic episodes less well than younger Type I patients. On the other hand, reduction of glucose levels toward normal in Type II patients should be beneficial since the addition of glucose to proteins in capillary basement membranes and elsewhere is presumed to be the etiology of many long-term complications.

The social and medical advantages of better care. During the coming years, social and economic forces will necessitate more effective diabetes management. Emphasis on outcomes and the development of practice parameters and standards of care may result in more rigorous expectations of physicians. Patients developing long-term complications may hold physicians responsible for damages if they believe the care they received was not state of the art.

Concerns about cost containment and the active involvement of patients and health plan managers will likely lead to increased involvement of other health professionals in diabetes care and a greater emphasis on prevention. The up-front expense for prevention, an investment that must continue over many years, may well lessen expenditures for complications at a later date. Investing in prevention is wise, considering that in 1990

Table 3. Percentage of physicians providing specific diabetes-related care procedures at office visits

Care procedure	initiai visit	"problem" vislt	scheduled visit
Eye exam	79%	38%	55%
Vision assessment	59%	35%	29%
Foot exam	72%	42%	57%
Blood pressure measurement	84%	67%	85%
Fasting blood glucose	74%	53%	74%
Urine glucose	62%	43%	36%
Urine ketones	55%	49%	31%
Hemoglobin A1	45%	27%	54%
Medication assessment	80%	65%	80%
Nutrition instruction	76%	39%	58%
Diabetes education	77%	34%	54%
Review home blood glucose records	60%	49%	73%
Review sick day guidelines	40%	40%	24%

North Carolina spent \$486,305,371 for hospitalizations related to diabetes, and a total of \$1.2 billion for diabetes care (including indirect costs and outpatient health care costs of \$84 million).³ North Carolina citizens bear the cost of diabetes and its long-term complications to the tune of \$73 per person per year. Investing today in diabetes education and in the equipment necessary for better control holds promise for lowering or delaying future costs.

Important as the economic considerations are, the human and health costs are more crucial. We have evidence that better glucose control can prevent or postpone the complications of diabetes. Now we need adequate numbers of health professionals properly trained in diabetes management and education. How many people with diabetes could receive additional self-care instruction and monitoring for the cost of one amputation? And

who among us would not prefer preventive self-care instruction and monitoring over amputation, dialysis, blindness, impotence, or complications of pregnancy? We are at an exciting crossroads in both clinical practice and public policy. Once manifest, diabetes is a lifelong disease. It is incumbent upon us to pursue the options that preserve health and prevent the untoward, but no longer inevitable, complications of diabetes mellitus.

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Appendix: Sick Day Guidelines

Sickness or infection may cause your diabetes to go out of control by increasing blood sugar. This may cause a build-up of ketones, which could lead to coma. Plan ahead to prevent such problems:

- ✓ Always take your medications (insulin or pills) as prescribed by your doctor. Call if you think a change is needed.
- ✓ Test your blood sugar more often (at least twice a day) and check your urine for ketones if blood sugar is above 240 mg/dL.
- ✓ Drink extra sugar-free liquids.
- ✓ Follow your diet as closely as possible. If unable to eat solid food, eat or drink one of the following every hour:

6 saltine crackers

1/3 cup regular gelatin

1 cup soup

3/4 cup regular soft drink

1/2 cup juice

1/4 cup sherbet

- ✓ Call your doctor if:
 - Illness continues for more than two days.
 - · You are unable to keep down liquids.
 - · You have ketones in your urine.
 - · Blood sugar continues higher or lower than usual.
 - You are unsure what to do.



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Physician Standards of Diabetes Care

Results From the North Carolina Diabetes Control Pilot Project

Sue B. Daughtry, RD, LDN, MS, CDE, and James Magner, MD

Diabetes is a major health problem in North Carolina. It takes a great toll in death and disability, largely due to the complications that accompany it: cardio-vascular disease, renal failure, eye problems or blindness, neuropathy, and amputations. The prevalence of diabetes is higher in eastern and western than in central North Carolina, but the death rate from diabetes is highest in the eastern part of the state, 25% higher than the national average.

The Diabetes Control Program

In 1986, the Adult Health Services Section of the NC Department of Environment, Health, and Natural Resources received a grant from the Centers for Disease Control to establish the NC Diabetes Control Program (DCP).1 Pilot projects were begun in three eastern North Carolina health districts. These were complication-specific programs designed to provide diabetes assessment, referral, education, and follow-up by health department nurses and dietitians. The three eastern health districts (Martin, Tyrrell, Washington, Pamlico, and Halifax counties) were selected by Adult Health Services staff through a competitive application process. A nurse and a dietitian in each of the five counties received specialized

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training from the staff of The Diabetes Center at the East Carolina University School of Medicine and the coordinator of the NC Diabetes Control Program. Training took place in Greenville and at the health departments in each county.

Approximately 500 participants per year were screened for glucose control, lipid status, and kidney function as well as for hypertension, eye problems, and foot problems. In addition, each participant received an educational assessment followed by instruction by a nurse and dietitian in the information and skills required by patients for self care.

Methods

Before the pilot projects were established, primary care physicians in the five counties were surveyed to determine the existing standard of diabetes education and screening for complications. The staff of the ECU School of Medicine Section of Endocrinology conducted the initial survey in 1986 and a second one in 1990 (to determine whether the pilot programs had affected physician practice standards). Since patient care is physician-directed, the funding agency was particularly interested in physician response and whether physicians in the project counties were working with project members to improve control of diabetes.

In 1986, an 11-item questionnaire (see Appendix, questions 1-11) was mailed to each of the 27 physicians providing primary care for persons with dia-

betes in the five DCP project counties. A second form was mailed to those who had not responded within six weeks. Twenty-two questionnaires were returned for a response rate of 81%.

In 1990, after four years of project activities, the survey was repeated. Five additional questions were added in order to determine the physicians' opinions about DCP activities and the impact of the project on patient self-care of diabetes (see Appendix, questions 12-16). In order to determine whether any changes in physician behavior were due to influences other than the DCP project, the 1990 survey form was also sent to physicians in five counties adjacent to the project counties. These "control counties" (Currituck, Edgecombe, Hertford, Hyde, and Perguimans) had economic, racial, and demographic characteristics comparable to the original five.

In 1990, there were 36 physicians providing primary care for persons with diabetes in the project counties. All received questionnaires with a second mailing in six weeks if no response was received. Eighteen of the 36 physicians returned questionnaires for a response rate of 50%. In the control counties, 25 of 28 physicians returned the questionnaires for a response rate of 89%. Thus, in 1990, the overall response rate was 70%.

Results and Discussion

The reason for the lower 1990 response rate by physicians in the project counties

is unknown. More surveys were mailed in 1990 than in 1986; it may be that some of these physicians were not involved in diabetes care.

The responses that showed major differences in physician or patient behavior are compiled in Table 1. For example, in 1986, only 68% of respondents from the DCP counties indicated that they referred patients with diabetes for an annual dilated retinal exam. In 1990, 83% of respondents from the DCP counties were doing so,

but figures did not reach statistical significance. In 1990, only 48% of the physicians in the control counties referred their patients for annual retinal exams, and this was significantly different from the DCP counties.

Table 1 shows trends toward increased referrals of patients by physicians and patient participation in self care (reflected by home glucose monitoring), which coincided with increased availability of diabetes education and eye screening in the DCP counties. Apparently, some physicians did use these additional services available to anyone with diabetes for a minimal charge.

The response of physicians to the project was generally positive. More than 90% of respondents indicated that participants in the program did as well or better than non-participants in diabetes self-care activities such as weight control, exercising regularly, and checking blood glucose. More than 50% stated that

DCP countles		control countles	
<u>1986</u> *	<u>1990</u> *	<u>1990</u>	
68%	83%†	48%†	
68%	77%	50%	
41%	59%†	22%†	
17%	50%	24%	
	coun 1986* 68% 68% 41%	countles 1986* 1990* 68% 83%† 68% 77% 41% 59%†	

- Values from DCP counties in 1986 and 1990 were not significantly different due to low numbers (p>.05 by Chi square test).
- Values from control and DCP counties in 1990 were significantly different (p<.05 by Chisquare).

DCP participants checked their blood glucose more often and asked questions about their health more often than other diabetic patients.

Forty-seven percent of the physician respondents indicated that the program provided opportunities for the public to learn about diabetes. One-third indicated that they felt that the program had increased awareness of the complications of diabetes in their communities.

Diabetes care and instruction requires substantial amounts of trained professionals' time. Physicians generally do not have time to provide all of the assessment, instruction, and follow-up needed. Unfortunately, many communities have no other resources available. This survey seems to indicate that at least some physicians in the five project counties took the opportunity to refer individuals with diabetes for more comprehensive care and education and recognized some positive changes in patient behavior.

Implications for the Future

Our nation is looking for ways to provide high-quality health care at an affordable cost. One option is to train non-physician health care professionals to assume more responsibility in working with the physician and patient. Major health problems such as diabetes, which requires significant changes in lifestyle, are particularly well-suited to such an approach because the amount of time required is greater than physicians can provide personally without substantially increasing costs. Further efforts are needed to investigate the best ways to implement a system promoting a coordinated multidisciplinary approach to health care. \Box

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Appendix: Diabetes Control Project Questionnaire

Please complete the following to the best of your knowledge. If you do not know the answer exactly, please estimate.

- 1. How many patients do you see in a day?
- a. 0
- d. 21-30
- b. 1-10
- e. 21-40
- c. 11-20
- f. 41-50
- 2. What percent are diabetic?
- a. 0-25%
- c. 50%-75%
- b. 25%-50%
- d. 75%-100%
- 3. How often do you refer your patients with diabetes for a dilated funduscopic exam?
- a. annually
- b. every two years __
- c. every five years
- __ d. n/a ____

- Approximately what percentage of your patients with diabetes do you refer to a nutritionist or dietitian? Check the response that applies for Type I and Type II diabetes.
- the response that applies for Type I and Type II diabete

 Type I Type II

 a. 0-25% a.
 - . 25%-50% ____ b. ___
 - 50%-75% c.
- d. 75%-100% d. ____
- 5. What proportion of your diabetic patients self-monitor
 - their blood glucose at home?
 1. 0-25%
 3.
 - 3. 50%-75% ____
 - 2. 25%-50%
- 4. 75%-100% ____

Of those who self-monitor, what percentage use the following methods: blood glucose	 Compared to other patients you provide medical care for, do patients who participate in the diabetes control program generally: (check one response per letter
testing meters visual testing urine testing	category) more about less
1. 0-25%	often the same often
2. 25%-50%	a. check blood glucose
3. 50%-75%	b. recognize foot problems c. exercise regularly
4. 75%-100%	d. control weight e. control blood pressure
6. What percentage of your patients with diabetes have used home blood glucose monitoring?	f. control blood glucose g. ask about their health h. provide important
a. every month b. every six months	information to me
c. annually d. other, specify	14. In your opinion, has the Diabetes Control Program contributed to any of the following effects in your community?
7. How often do you examine the feet of your patients with diabetes?	a. increased awareness of risk factors for diabetes
a. every month b. every six months	yes no
c. annually d. other, specify	 b. increased awareness of the complications of diabetes
8. How often do you obtain a serum creatinine and quantitative urine protein for your patients with diabetes?	yes no c. more opportunities for the public to learn about
a. every six months b. yearly c. other	diabetes yes no
9. At what blood pressure level do you feel that a patient with diabetes should be treated for hypertension with medication?	How often do you receive feedback from Diabetes Control Project coordinators about your patients who participate in the Diabetes Control Program?
 How do you usually instruct your patients in sick day rules? (check any that apply) 	
a. verbally d. refer to Diabetes Control Program	16. Do you have any suggestions that would improve coor-
b. handout	dination of patient care between the Diabetes Control Program and physicians such as yourself?
e. do not provide sick c. drug company materials day rules	
11. Do you attempt diet therapy in Type II diabetes before instituting insulin or oral agents?	
a. yes b. no	
If yes, how?	What year did you graduate from medical school?
1. office nurse 4. phys. instructions 2. dietitian/nutritionist 5. diet sheet Diabetes Control Program	
3. other	Additional comments:
12. Approximately what percentage of your patients with diabetes do you refer to the Diabetes Control Program?	
a. 0-25% b. 25%-50%	
c. 50%-75% d. 75%-100%	

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Health Watch

VOLUME 55 / NUMBER 7 / JULY 1994

Bicycle Safety

A SAFER RIDE

Why Cycling?

Bicycles are used for fun, as means of transportation and for exercise. In many ways, cycling is better than jogging and a lot less monotonous. If you cycle five miles in an hour, you burn up 270 calories. Cycling is good for leg muscles and is a stress and mental fatigue reducer. Steady pedaling can keep you physically fit and is not hard work. Along with toning your body with proper riding you can also have fun while doing it. Bicycle riding is relaxing whether done alone or with a group.

Bicycle Ownership

Owning a bicycle is quite a responsibility for young or old. A bicycle is a machine, not a toy. It is important for children to be taught to ride safely and follow rules at an early age while they are still impressionable. Children form bad habits easily; the longer you wait to properly train them, the harder it will be. The rules you instill in your children, usually by 10, will determine how they will ride for years to come. And you as a parent will feel more confident about your child's life.

Compiled by Bob Burns, Executive Assistant of the North Carolina Medical Society.

The Facts

When we are less than careful and fail to obey laws, we run the risk of injury or death. Accidents can occur during daytime hours on quiet two-lane residential streets. Almost 45% of all cycling deaths occur after dark. While head injuries account for the largest percentage of injuries others include bone fractures and scrapes. Below are North Carolina bicycle accident statistics (1992) provided by the UNC Highway Safety Research Center:

- Twenty-two bicyclists were killed in North Carolina in 1992; nearly one-third were under the age of 19.
- Two hundred twenty-five bicyclists received serious injuries from bicycle accidents; 58% of these were 19 years of age or younger.
- One thousand two hundred ninety-five bicycle injuries in North Carolina were reported by police; close to 60% of these involved persons 19 years of younger.

It is important to note that the majority of bike accidents do not involve cars. Falls, collisions with stationary objects, and collisions with pedestrians and other bikes make up the majority of bike accidents. Most of these accidents luckily do not result in serious injury but they can. Bicyclists have been killed or seriously injured by running into each other or some object. Accidents involving cars, however, produce the bulk of serious injuries. The following are the most common types of car/bicycle accidents:

- Driveway rideout: Approximately 8 to 10% of all car/bicycle accidents are the result of children riding out of driveways onto the open street. Typically children involved in these types of accidents are young (less than ten). To prevent this type of accident from occurring children need to be instructed to: 1) stop before entering the street, and 2) look left, right and left again for traffic before entering the street.
- Running stop signs: About 10% of all car/bicycle accidents are the result of the bicyclist not stopping for stop signs. Studies have shown that most children know that they should stop but either are distracted or don't see the need. Children need to be instructed that they should: 1) stop at all stop signs regardless of what is happening, 2) look in both directions for traffic, and 3) let all cross traffic clear before proceeding.
- Turning without warning: Another type of car/bicycle accident that is a major contributor of serious injury to children involves bicyclists who make unexpected left turns. These bicyclists do not look back to check for traffic nor do they signal that they are going to be turning. The key factor with these types of accidents is the bicyclist neglecting to look to the rear. If they did they would have seen cars coming up from behind. Parents need to teach their children how to look back while they are riding without swerving. Children can be taken to a playground or another safe area to practice this technique.
- Nighttime riding: Certain types of accidents happen most often after dark. Many of these are 'overtaking' accidents where the car coming up from the rear hits the bicyclist. These can be very serious accidents. About 25% of all fatal car/bicycle accidents occur this way. These usually involve older bicyclists. To help avoid these types of accidents bicyclists need to use bright lights and reflectors, and wear light-colored clothing.
- Following the leader: Many car/bicycle collisions occur
 when children are following each other. If the first child
 runs a stop sign and gets through the second child may try
 but get hit. Parents should teach their children to always
 asses the traffic situations for themselves. When a group
 is riding around, each bicyclist should stop for stop signs.

Safety First

Helmets

While bicycle helmets can't prevent bike collisions or crashes from occurring, they can lessen the extent of head injuries. Helmets have undergone considerable changes recently. They are designed to look great, feel light and cool, protect better and last for a long time. A helmet is a good investment when you consider the consequences of not wearing one.

Your Bicycle

One of the most important factors in buying a bike is getting one that fits. A suitable fit will allow you to straddle the bike and stand flat footed with an inch or so between you and the top frame. Modifications can be made to the height, position and tilt of the saddle for greater comfort. Handlebars can also be adjusted for the proper lean of your upper body. These minor adjustments can make a big difference in safety and riding pleasure.

Know your Rights and Responsibilities

As with any other vehicle cyclists have the right to use the road and the responsibility to obey the laws. Once these responsibilities are ignored life is endangered. Bicyclists have the right to ride on any state maintained road except interstate highways and other fully-controlled access highways such as major state highways. Cyclists should ride as far to the right of the road as possible. Never ride in the middle of a traffic lane unless you can maintain the same speed as other vehicles. North Carolina bicycle traffic laws—which you must obey—are as follows:

- ride on the right in the same direction as other moving traffic;
- obey all traffic signs and signals including stop, yield and oneway signs;
- be sure to use hand signals to let others know what you're going to do;
- yield to pedestrians and emergency vehicles;
- equip the bicycle with a front lamp visible from 300 feet and rear reflector visible from 200 feet at night.



Bicycle Trips

Bicycle trips, whether an all-day outing, an overnight camping trip or a long-distance tour can be great fun for any young person. While it is likely that most children will only be involved in day trips of 5 to 15 miles, it is possible for a child to travel much farther on a bike. A number of young children have accomplished cross-country tours; many more have bicycled hundreds of miles with their parents or as a part of an organized group. This type of travel can provide a rewarding challenge to a person of any age.

A Day Trip

The first trip by bicycle should be a short one through familiar territory. Five to ten miles is a good distance. A ride along a well-constructed recreational bike path would be ideal, but this type of facility is not available in all areas. Other possibilities include roads within a nearby park or historic site, or a loop trip along lightly traveled rural roads. The time of day or day of week often has a bearing on the amount of traffic that will be encountered. This should be taken into consideration in planning any trip. For instance, roads within a nearby recreation area would be more lightly traveled during the week than on weekends; roads in a park area are sometimes closed to motorized traffic on weekends; a historic site near a downtown area might be more accessible on a Sunday when traffic is lighter. Maps showing the average daily traffic volumes for rural roads are available from the Department of Transportation and are useful in planning rides in the country. The selected route should be tested before the day of the group ride to pinpoint potential problems, as well as to locate rest stops and points of interest.

Once the outing has been planned, the bicycles should be inspected to be sure they are in good condition. Check tire pressure and brake adjustment; tighten nuts and bolts, seat post and handlebars. Most importantly, be sure the bicycle fits the child. A child will often borrow a bicycle that is not the proper size. If the bicycle is too large it will be hard to control while a bicycle that is too small or whose seat is too low doesn't allow for proper extension of the leg, causing the rider to fatigue more easily.

Finally, be sure that the children understand the fundamental rules of the road. The bicycle is a vehicle and should be ridden on the right-hand side of the road, in the same direction as other traffic. Riders should ride single file, even though it is tempting to ride beside a friend to talk. A bicyclist should stop at stop signs and stop lights, signal all turns, and should never ride the wrong way down a one-way street. On the road, ride in small groups of five or six, leaving enough room between groups so that a motorist can pass safely. If a line of cars forms behind a group, the bicyclists should get off the road to let them pass.

When riding on public roads, be sure that there is at least one adult supervisor for each ten children. There should never be less than two supervisors, however. One should ride in the front to be sure that the group follows the planned route, while the other one should ride at the back to be sure there aren't any stragglers and to take care of any breakdowns which might occur. A support vehicle or "sag-wagon" might be used to cover any emergency situations or other problems which might occur.



On the appointed day, assemble the children and their bikes at the starting point. Review the rules of the road and quickly spot check the bicycles to be sure that no serious problems exist. Set a moderate pace for the ride and keep the group tight. Cyclists spread along several miles of the route will annoy motorists and make it difficult for leaders to watch the children and make sure they are riding responsibly. The forward leader might occasionally drop back to check the riding techniques of the children or to comment if a child is not following proper procedures.

Above all, be sure the trip is fun. Bicycling should be encouraged as a healthful, energy-efficient form of transportation. A child who doesn't enjoy the trip will be discouraged about traveling by bike.

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The University of North Carolina Highway Safety Research Center, 134 1/2 East Franklin Street, Campus Box 3430, Chapel Hill, NC 27599-3430.

Bicycle Forum, PO Box 8308, Missoula, MT 59807

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Illiteracy and the Readability of Patient Education Materials

A Look at Health Watch

Steven R. Feldman, MD, PhD, Angela Quinlivan, Phillip Williford, MD, Judy L. Bahnson, and Alan B. Fleischer, Jr., MD

Printed materials prepared for use by patients include patient education documents, consent forms, and legal instruments. These materials are available from numerous sources, but are also easily produced by physicians using personal computers equipped with word processing software. When writing for a general audience, it is important to consider the reading ability of the audience and whether the documents produced will be readable by those for whom they are intended. In the United States, illiteracy is a major obstacle to educating patients.

The scope of the problem is shown by the fact that 25% of the adult population in North Carolina (age 25 years and older) has completed less than nine years of schooling, and 6% less than five years. Functional illiteracy, defined as having completed less than nine years of schooling, is present in 20% of the urban and 28% of the rural population of North Carolina. It affects both whites (22% illiterate) and non-whites (34%), and is a especially prevalent in people 65 years and older (55% illiterate). Even educational material written for a 6th-grade reading level cannot be read by 5%-10% of the general population.

It is now simple to measure the readability of written material using a desktop computer.² The measures of readability are based on the known difficulty of reading long sentences and multisyllabic words.^{3,4} We carried out the present study to illustrate the value of determining the reading level of written, patient-oriented, educational material. Our study also gives us an opportunity to reemphasize the problem of illiteracy. We chose to analyze *Health Watch*, the patient-oriented supplement published monthly in the *North Carolina Medical Journal*, because it is a well-recognized example of typical patient education material.

Methods

We converted 14 consecutive *Health Watch* issues (April 1992 through June 1993) into ASCII text files with a hand-held scanner (IDSCAN-800, Identity Systems Technology, Richardson, TX). We corrected the files for scanning and character recognition errors using Word Perfect for Windows (Word Perfect Corp., Orem, UT). We carried out statistical analysis of readability using the Grammatik 5 program (Word Perfect Corp). We based the statistical measures of readability on the average number of words per sentence and the average number of syllables per word. Well-accepted measures include the Flesch Reading Ease, Flesch Kincaid grade level, and the Fog index. ^{2,3,5} The Flesch Kincaid grade level and the Fog index give the grade level at which students could read and understand the documents. The Flesch Reading Ease gives higher scores to documents that are easier to read.

Results

The Flesch Kincaid Grade Level assigned to *Health Watch* articles ranged from grade 8 to grade 14 (Table 1). The readability of the documents was distributed in a roughly normal distribution with a mode at the 11th-grade level (Fig. 1). Both sentence length and the use of multisyllabic words contributed to the reading difficulty. The three issues assigned Flesch Kincaid grade level 13 averaged 1.7 syllables per word or more. Sentence length was the major contributor in the article with the highest reading level—the December 1992 issue on poetry (26.3 words per sentence). Topic alone does not explain the

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Table 1. Readability* of Health Watch articles (April 1992-June 1993)

Topic	Date	Worda/ Sentence	Syllables/ Word	Flesch Reading Ease	Flesch Kincald Grade	Fog Index
Seizures	4/92	13.7	1.68	51	10	13
Seizures	5/92	18.0	1.78	38	13	16
Seizures	6/92	15.5	1.69	48	11	13
Youth & Alcohol	7/92	17.1	1.66	49	11	14
Youth & Tobacc	o 8/92	21.1	1.71	41	13	16
Healthy Youths	9/92	16.3	1.68	48	11	14
Prescriptions	10/92	12.0	1.63	57	8	12
Prescriptions	11/92	17.8	1.69	46	11	16
Wrote a Poem	12/92	26.3	1.65	40	14	18
Breast Cancer	1/93	15.0	1.66	51	10	13
Prostate Cancer	2/93	20.2	1.70	42	13	16
Skin Cancer	4/93	18.5	1.67	47	12	15
Dom. Violence	5/93	16.2	1.60	55	10	13
Family Violence	6/93	14.5	1.74	45	11	14

^{*}Documents with Flesch Reading Ease scores of 30-50 are difficult to read; 51-60, are fairly difficult; and 61-70 are average (equivalent to 8th-grade level). The Flesch Kincaid Grade and Fox index are estimates of the educational grade level required to read the document.

level of reading difficulty. The reading level of issues on prescriptions ranged from grade 8 to grade 11 and that of the issues on seizures, from grade 10 to 13.

Discussion

The readability of *Health Watch* documents follows the patterns of readability observed in previous studies.⁶⁻⁸ Those studies found that many patient education materials are suitable for those able to read at the 10th-grade level or higher. For example, Jackson et al⁹ found that the 275 patient education brochures used in Louisiana State University Medical Center clinics had a modal reading level score of 12th grade. The mostly indigent patients for whom the brochures were intended had a mean reading ability at the 5th-grade level!

Illiteracy is a big problem but difficult to quantify, at least in part because we do not have a well-accepted definition of illiteracy. ¹⁰ Using the "conventional" definition—persons older than 14 years who are unable to read and write English at all, and unable to read or write a language other than English spoken in the home—the US Census Bureau estimated that, in 1980, 0.5% of the nation's population was illiterate. This means that more than one million American adults can neither read or write.

The conventional definition of illiteracy sets a lower limit to the extent of the problem, but a more realistic picture comes from using functional illiteracy as the standard. Functional illiteracy means that a person cannot understand written instructions necessary to accomplish specific tasks. As the needs of society become more complex, literacy requirements also

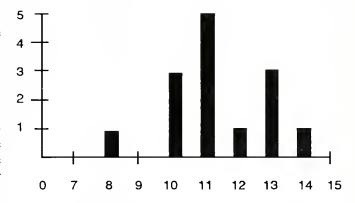


Fig 1: The Flesch Kincaid readability grade levels of 14 consecutive issues of *Health Watch* were determined and the total number of issues at each grade level plotted.

increase. For instance, in the 1940s, the reading and writing skills provided by a 6th-grade education defined the limits of functional illiteracy; by the 1970s, a 10th- to 12th-grade education was necessary. If we use a modern definition of functional illiteracy as the standard, up to 50% of the US adult population—nearly 100 million adults—are functionally illiterate.¹⁰

The economic costs of illiteracy are of general concern. In the US, the economic impact of illiteracy amounts to more than \$200 billion per year. The effects of illiteracy on health are important because illiteracy has a major negative influence on health. It is a risk factor for both mortality and for higher incidence of many diseases. The incidence of chronic illness is increased in those with less formal education, independent of

other risk factors such as age, sex, race, and smoking. Illiteracy also affects the health of patients because they use medications incorrectly or fail to follow medical directions.

Indirect effects on health may be even more important than direct effects. The indirect effects include poor lifestyle practices, poverty, stress and low self-esteem, lack of access to health information, and lack of use or inappropriate use of

medical and health services.¹¹ The effects of illiteracy are clearly relevant to how we manage patients.

Improved readability improves the comprehension of written patient education material. The availability of modern word processing software allows us to determine

the readability of patient education materials and to improve their readability. Consider the following paragraph from the November 1992 *Health Watch*, written at the 11th-grade level:

Why take prescription medicines? Prescription medicines are appropriate for use in many situations. One use is to help people recover from illness. Another is for the treatment of a health condition so that other more severe health conditions will not occur, as in the case of treating high blood pressure to prevent a stroke. Prescription medicines may be used to control symptoms associated with non-life threatening conditions such as back pain, or they may be used to help people function better when they have a chronic illness such as arthritis.

A few changes improve the readability considerably without

significantly changing content. These changes include the use of smaller words, simple concepts, and shorter sentences to explain ideas. Look at the paragraph modified to the 5th-grade level:

Why should you take medicines? Medicines can be used in many ways. One use is to help people get well. Another

use is to treat problems that cause illness. For example treating high blood pressure helps prevent stroke. Medicines may be used for less serious problems such as back pain. They may be used to help people do more when

they have an illness they live with such as arthritis.

"Doctors and other health

professionals need to be aware

of the prevalence of illiteracy

and its effects on health."

Making written educational material more readable is helpful and important, but it provides only a limited solution to the problem of patient education. Many patients cannot or will not read written material, no matter how simple the text. Societal programs to end illiteracy and to teach patients how to read are potential approaches. Such programs exist at the national, state, and local levels. Other solutions include novel health education materials for patients, such as one-on-one interventions and demonstrations. At present, word-of-mouth information from friends and family is the most common source of health information for people who cannot read. Doctors and other health professionals need to be aware of the prevalence of illiteracy and its effects on health. Health education by a knowledgeable health care professional is the first step toward improved patient education.

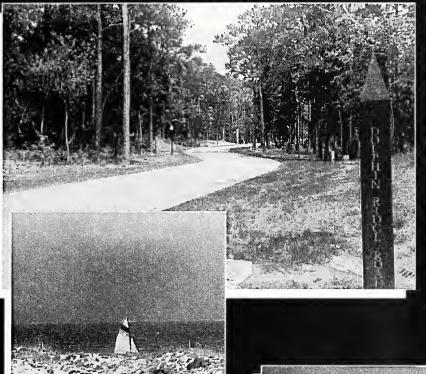
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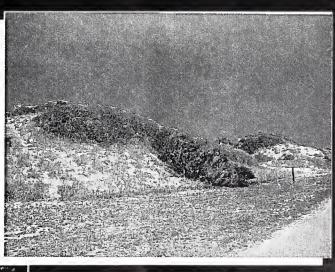


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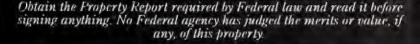
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Letters to the Editor

continued from page 262

This was an excellent paper, and I think copies of it should be sent to President Clinton and all members of the House of Representatives and Senate who are attempting to devise a health care plan for all the people of America.

Robert L. Summerlin, MD Secretary, Bladen Co. Medical Society Dublin Clinic Dublin, NC 28332

From the Editor:

The *Journal* has no funds for mailing articles. But we invite interested parties to photocopy any of our articles for informational purposes.

Wrotten Wryting

To the Editor:

I enjoy reading the North Carolina Medical Journal. The selection of ar-

ticles is well-rounded and the letters and editorials are interesting and sometimes surprising. The format is good, and who has what to say is always stimulating.

I was particularly surprised when I read the Letters to the Editor (NC Med J 1994;55:209); not the content, for it was useful, but rather the Editor's license to do what he tells us to avoid. When I went to the dictionary it came to mind the admonitions the *Journal* frequently publishes as "Instructions for Authors."

Under "Orwell's Six Rules of Good Writing": Never use a foreign phrase, a scientific word, or jargon word if you can think of an English equivalent." I thought I could count six or seven words or phrases that might come under this category. Nevertheless, the connection of the letter and article was well thought-out and I was glad to read it.

John R. Gamble, Jr., MD 108 Doctor's Park Lincolnton, NC 28093

From the Editor:

We appreciate Dr. Gamble's close reading of the Letters. We do like and reprint here Orwell's rules:

- Never use a metaphor, simile, or other figure of speech which you are used to seeing in print.
- 2) Never use a long word where a short one will do.
- 3) If it is possible to cut a word out, always cut it out.
- 4) Never use the passive where you can use the active.
- Never use a foreign phrase, a scientific word, or jargon word if you can think of an English equivalent.
- Break any of these rules sooner than say anything outright barbarous.

We don't think Mr. Orwell meant readers should never have to go to the dictionary—how else would the Editor be able to follow Rule 6 while heeding the others?

Management of Hypertensive Emergencies and Urgencies

John R. Raymond, MD, John M. Arthur, MD, PhD, and Roslyn B. Mannon, MD

Hypertension afflicts 15% to 25% of adults in Western societies—nearly 50 million Americans. About 1% of these individuals develop malignant hypertension or some other hypertensive emergency during their lifetimes. The advent and refinement of effective antihypertensive therapy makes identification of hypertensive emergencies essential. Treatment must be rapid to minimize end-organ damage.

Here we review the principles of treating hypertensive emergencies, the use of pharmacologic agents, and special situations associated with severe hypertension. We begin with a definition of terms:

Malignant hypertension means an elevated blood pressure (diastolic pressures usually over 130 to 140 mmHg) associated with papilledema (grade 4 Keith-Wagener-Barker retinopathy).²

Accelerated hypertension is somewhat less severe (although diastolic pressures are often over 130 mmHg) because there is grade 3 retinopathy (hemorrhages and exudates) but no papilledema.

Hypertensive emergency means that blood pressure is so high that vascular necrosis and end-organ damage will result within minutes to hours. Requires immediate treatment.

Hypertensive urgency means blood pressure must be lowered within hours.³

Hypertensive encephalopathy is a reversible syndrome of headache, confusion, irritability, stupor, visual distur-

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bances, or other abnormalities of central nervous system function associated with markedly elevated blood pressure.

Treating Severe Hypertension

A cardinal point to remember is that no absolute level of blood pressure elevation constitutes an "emergency." Some patients tolerate diastolic blood pressures above 150 mmHg; others require emergent therapy. The rate of rise in blood pressure is probably as important as the absolute level. Thus, management of patients with severe hypertension depends greatly on judgment, but physicians should adhere to basic principles (Table 1) in evaluating patients with potential hypertensive urgency or emergency.

The first step in evaluation is a quick search for evidence of end-organ damage: headache, encephalopathy, angina pectoris, left ventricular strain or failure, renal insufficiency, or hemolytic anemia. Next, one must decide how urgently to treat. With hypertensive emergencies, therapy should not be postponed while extensive laboratory studies are obtained. A drug should be chosen and given expeditiously. In general, the choice of antihypertensive agent(s) depends less on the underlying cause than on the presence of end-organ damage or severity of hypertension. However, drug choice should be guided by a knowledge of the patient's medical condition and of the properties of various antihypertensive agents. Finally, parenteral agents are used primarily to buy time. Patients should be started on a logical oral regimen soon after initiating parenteral therapy, so that the infusion can be discontinued as soon as possible.

The prognosis for untreated patients with hypertensive emergencies or urgencies varies, but is usually poor. By the 1950s, 50% to 70% of those with untreated malignant hypertension died in six months to one year, and 100% by two years. With effective modern therapy, the prognosis has improved so that 70% survive one year and 50%, five years.

Table 1. Management principles for hypertensive emergencies

- 1. Recognize dangerous elevation of blood pressure.
- 2. Search for end-organ damage.
- Determine how rapidly to treat patient.
- 4. Choose therapy based on clinical presentation. If an emergency, then...
 - a. quickly lower diastolic BP to 110-120 mmHg over the first hour.
 - b. lower diastolic BP to 100 mmHg over the next 24 to 48 hours.
 - c. lower diastolic BP to "normal" range over the next 24 to 48 hours.
- Start oral therapy immediately. The goal is to discontinue parenteral therapy as soon as possible.
- 6. Avoid giving antihypertensive drugs by intramuscular injection!

Kempner described the first successful treatment of malignant hypertension with the low-sodium rice diet.4 Since then multiple effective therapeutic agents have been discovered. Physicians should be familiar with indications and contraindications, doses and side effects of a few of those agents. Fortunately, modern treatment regimens provide ample means of dealing with diverse conditions. For example, \(\beta \)-blockers can be used for aortic dissection, or hydralazine or methyldopa (in addition to magnesium sulfate) for the hypertensive emergencies of pregnancy. Hypertensive urgencies can be treated with oral nifedipine or clonidine.

"Hypertensive emergencies" arise because of malignant acceleration of essential hypertension or because of severe secondary hypertension such as due to pheochromocytoma or the ingestion of tyramine by a patient taking a monoamine oxidase inhibitor (MAOI). Moderate or severe hypertension coexisting with other conditions such as aortic dissection, acute pulmonary edema, eclampsia, or hypertensive encephalopathy requires immediate antihypertensive therapy.

Situations that require intervention within hours are often called "hypertensive urgencies," a term popularized by Anderson et al.³ Although seemingly arbitrary, the distinction between hypertensive emergencies and urgencies determines the rapidity of intervention and the choice of pharmacologic agents. The physician must decide, based on physical examination and mode of presentation, whether the patient will suffer end-organ damage and vascular necrosis if left untreated. If so, the situation is a hypertensive emergency, and immediate therapeutic intervention is necessary.

The choice of agents depends on the cause of the severe hypertension, the presence of coexisting medical conditions, the doctor's "style," and the rapidity with which one wants to lower blood pressure. As a guide to such choices we will focus primarily on drugs (Table 2, at right). Table 3, page 298, suggests treatments for specific diagnostic categories of hypertensive urgencies and emergencies.

Pharmacological treatment is almost always indicated for true hypertensive

emergencies. Parenteral agents are used to achieve a rapid therapeutic response—essentially a "time-buying" maneuver. Parenteral antihypertensives rarely "cure" severe hypertension (with the notable exception of severe hypertension associated with spinal cord trauma). Therefore, in general, one begins a potent two- or three-drug oral regimen as soon as possible, and titrates the dose upward so that the parenteral agent(s) can be tapered and discontinued.

Parenteral Antihypertensive Agents

Nitroprusside, a powerful vasodilator, is commonly used to treat hypertensive emergencies.5 It can control severe hypertension in almost any setting, and all physicians should be familiar with its properties. Onset of action is almost instantaneous, dose adjustment is easy and rapid, and it produces a consistent hypotensive effect. It does require constant monitoring in an intensive care unit and there is a risk of toxic accumulation of cyanide and thio cyanate. Nitroprusside is indicated for treating high blood pressure associated with encephalopathy, intracranial or subarachnoid bleeding, cerebrovascular accident, heart failure, burns, post-operative hypertension, and head trauma. It can be used for pheochromocytoma and MAOI-tyramine hypertension and, with a B-blocker, for aortic dissection. It should be used with caution in patients with cerebrovascular or cardiovascular disease because a precipitous lowering of blood pressure could cause stroke or cardiac ischemia. Nitroprusside is not advised in pregnant patients.

Side effects of nitroprusside include palpitations, tremor, headache, nausea, and vomiting. Thiocyanate, which adversely affects cellular respiration and oxygen transport, may accumulate during prolonged infusion and produce delirium, tinnitus, and diplopia. Thiocyanate levels should be measured when infusions last more than 24 to 36 hours or if there is renal insufficiency; levels of 10 to 12 mg/dL are toxic and the infusion should be tapered or discontinued. Aggressive

coincident oral antihypertensive treatment usually allows the infusion to be stopped before thiocyanate toxicity develops.

Nitroglycerin, a potent and potentially useful vasodilator, is generally not used intravenously in hypertensive emergencies. Advantages and disadvantages are similar to those of nitroprusside. Nitroglycerin could be an effective and logical agent in cases of left ventricular failure or severe hypertension associated with cardiac ischemia. In one cross-over study, 6 nitroglycerin was nearly as effective as nitroprusside in treating severe hypertension after coronary artery bypass surgery. Side effects include headache, ventilation-perfusion mismatch, methemoglobinemia, and bradycardia.

Diazoxide is a potent arteriolar vasodilator with insignificant effects on capacitance vessels.7 It is potent, has a nearly instantaneous onset of action, maximal effect within minutes, and prolonged action (one to 18 hours), which may obviate the need for intensive care unit monitoring or an arterial line. Potential disadvantages include increased cardiac output, reflex tachycardia, and overshoot hypotension. It is indicated in burn cases, severe post-operative hypertension, and hypertensive encephalopathy. It is contraindicated in dissecting aneurysm and cardiac ischemia. It must be used with extreme caution in patients with cerebrovascular or cardiovascular disease, stroke, or intracranial or subarachnoid hemorrhage.

Diazoxide inhibits pancreatic insulin release, often leading to hyperglycemia. Nausea, vomiting, tachycardia, and hyperuricemia are other potential side effects. Overshoot hypotension can be ameliorated by elevating the legs or infusing 0.9% saline. Giving recommended doses (150 to 300 mg) as a single intravenous bolus has led to stroke and myocardial infarction, particularly in volumedepleted patients. An alternative is to give 30 to 75 mg boluses every five to 30 minutes until the desired effect is achieved or a total of 300 to 600 mg has been given. More doses may be given at four- to eight-hour intervals. Concomitant use of

PO/SL PO	12.5 or 25 mg tabs 0.1 or 0.2 mg tabs	12.5-25 mg	1 hr	4 hr
PO	0.1 or 0.2 mg tabs	0.0 than 0.1		7 111
		0.2 mg; then 0.1 mg each hr until target BP reached or 0.6 mg given	30-60 min	2-6 hr
IV mini-bolus	300 mg/20 mL	30-75 mg every 5-30 min	3-5 min	1-18 hr
IV bolus	1.25 mg/mL	1.25 mg every 6 hr		
IV bolus		10-200 mg	30 min	4-6 hr
IV bolus	1 mg/mL	5-40 mg at 1-3 mg/min	5-30 min	1-8 hr
IV bolus IV drip	1 mg/mL 1-2 mg/mL	20-80 mg every 10-15 min 1-2 mg/min	5-10 min	5-10 min
IM		1-8 gm IM	5-60 min	2-8 hr
IV drip	100 mg/250 mL	5 mg/hr for 15 min; increase by 2.5 mg/hr every 15 min	20-60 min	30-60 min
SL/PO	10 mg capsule	5-10 mg repeated every 5-30 min	5-30 min	3-5 hr
IV drip	25-200 mg/L	10-300 μg/min	1 min	2-5 min
IV drip	50-300 mg/L	0.2-0.5 μg/kg/min	1 min	2-5 min
IV bolus IV drip	200-400 mg/L	5-20 mg 0.2-0.5 mg/min	1 min	brief
IV bolus	0.1 mg/mL	0.1-1 mg over 5 min every 5-30 min	minutes	1-4 hr
IV bolus	1-5 mg/20 mL	0.5-5 mg over 1 min	minutes	4-6 hr
IV drip	1-2 g/L	1-15 mg/min	5-10 min	5-10 min
_	IV bolus IV bolus IV bolus IV drip IM IV drip SL/PO IV drip IV drip IV bolus IV drip IV bolus IV drip IV bolus	IV bolus IV bolus IV bolus IV bolus IV drip IV bolus IV drip IV drip IV bolus IV drip	IV bolus 1 mg/mL 5-40 mg at 1-3 mg/min IV bolus 1 mg/mL 20-80 mg every 10-15 min IV drip 1-2 mg/mL 1-2 mg/min IM 1-8 gm IM IV drip 100 mg/250 mL 5 mg/hr for 15 min; increase by 2.5 mg/hr every 15 min SL/PO 10 mg capsule 5-10 mg repeated every 5-30 min IV drip 25-200 mg/L 10-300 μg/min IV drip 50-300 mg/L 0.2-0.5 μg/kg/min IV bolus 200-400 mg/L 5-20 mg 0.2-0.5 mg/min IV bolus 0.1 mg/mL 0.1-1 mg over 5 min every 5-30 min IV bolus 1-5 mg/20 mL 0.5-5 mg over 1 min IV drip 1-2 g/L 1-15 mg/min	IV bolus 1 mg/mL 5-40 mg at 1-3 mg/min 5-30 min IV bolus 1 mg/mL 20-80 mg every 10-15 min 5-10 min IV drip 1-2 mg/mL 1-2 mg/min 5-10 min IM 1-8 gm IM 5-60 min IV drip 100 mg/250 mL 5 mg/hr for 15 min; increase by 2.5 mg/hr every 15 min 20-60 min SL/PO 10 mg capsule 5-10 mg repeated every 5-30 min 5-30 min IV drip 25-200 mg/L 10-300 μg/min 1 min IV drip 50-300 mg/L 0.2-0.5 μg/kg/min 1 min IV bolus 200-400 mg/L 5-20 mg

diuretics prevents sodium retention.

Hydralazine is a moderately potent vasodilator that affects mainly arteriolar resistance vessels. It offers onset of action in five to 30 minutes, easy conversion to an inexpensive oral regimen, preservation of renal blood flow, and is relatively safe in pregnancy. Duration of action is one to eight hours. Disadvantages include poorly predictable effects (particularly when given intramuscularly, a route that should be avoided), overshoot hypotension, and increased heart rate and

cardiac output. Hydrazaline can be used for severe post-operative hypertension or hypertensive encephalopathy, but there are better agents for most situations except, possibly, toxemia (where it is a drug of choice) or severe hypertension in pregnancy. Relative contraindications include cardiac ischemia, dissecting aneurysm, and cerebrovascular disease. Tachycardia, headache, nausea, angina, tremor, palpitations, and paresthesias are side effects.

Alpha-methyldopa stimulates inhibitory α_{γ} -adrenergic receptors in the central ner-

vous system. It has moderate potency, provides smooth control within hours, is easily converted to oral therapy, and is relatively safe in pregnancy. Major disadvantages are its relatively slow onset of action (two to three hours) and poorly predictable effect. There are better agents for most situations, but it is a drug of choice for toxemia or severe hypertension in pregnancy. Other possible indications include dissecting aneurysm and left ventricular failure. Relative contraindications include active liver disease or altered mental status (as from stroke,

Table 3. Guide to treatment o	f specific hypertensive emerge	ncles	
<u>Condition</u> Hypertensive encephalopathy	<u>Treatment choices</u> Nitroprusside; Labetalol	Alternatives Trimethaphan; Diazoxide; Hydralazine	Treatments to avoid Clonidine; Methyldopa; Reserpine (sedating agents)
Stroke or transient ischemia	Nitroprusside; Labetalol	Trimethaphan	Clonidine; Methyldopa; Reserpine
Subarachnoid or intracranial hemorrhage; head trauma	Nitroprusside; Labetalol	Trimethaphan	Clonidine; Methyldopa; Reserpine
Acute aortic dissection	Trimethaphan; Labetalol; Nitroprusside + ß-blocker	Methyldopa; Reserpine; Nitroglycerin + B-blocker	Clonidine; Nifedipine; Reserpine; Diazoxide
Cardiac ischemia/infarction	Nitroglycerin; Labetalol	Nitroprusside; Nifedipine; Nicardipine; Verapamil	Diazoxide; Hydralazine; Clonidine
Left ventricular failure	Nitroprusside; Nitroglycerin + Loop diuretic	Trimethaphan + Loop diuretic; Enalaprilat; Methyldopa	Verapamil; ß-blockers; Diazoxide; Clonidine
Toxemia of pregnancy	MgSO ₄ + Methyldopa or Hydralazine	Labetaiol	ACE inhibitors; Reserpine; ß-blockers
Renal insufficiency	Nitroprusside; Labetalol	Nifedipine; Nicardipine	ß-blockers; Trimethaphan
Scleroderma renal crisis	Nitroprusside; Captopril; Enalaprilat	Diazoxide; Labetalol	
Body burns	Nitroprusside; Trimethaphan; Labetalol	Nifedipine; Clonidine; Diazoxide	Diuretics
Post-operative bleeding	Nitroprusside; Labetalol	Nifedipine; Hydralazine	Diuretics
New, severe hypertension -with few symptoms -with Grade 3 retinopathy or accelerated hypertension	Judicious use of oral agent Judicious use of oral agent	Parenteral or oral loading Parenteral or oral loading	Avoid over-reacting Avoid over-reacting
Malignant hypertension or Grade 4 retinopathy	Nitroprusside; Labetalol; other parenteral agents	Determined by clinical situation	Determined by clinical situation
Hyperadrenergic states -Withdraw adrenergic agents, pheochromocytoma, MAOI crisis	Nitroprusside; Phentolamine	Labetalol; Methyldopa; Clonidine; Trimethaphan	Most other drugs
-Illegal/recreational drugs -Malignant hyperthermia -Spinal cord injury	Nitroprusside Nitroprusside; Labetalol Nitroprusside; Labetalol	Labetalol; Phentolamine Phentolamine; Trimethaphan Phentolamine	Most other drugs Long-acting agents Long-acting agents

head trauma, intracranial hemorrhage, or hypertensive encephalopathy). Side effects include central nervous system depression, palpitations, nausea, tachycardia, and aggravation of cardiac ischemia.

Labetalol is a unique, combined α - and β -adrenergic blocking agent. Its α - to β -blocking potency ratio is about 1:7; it has

one-half the α_1 -blocking activity of phentolamine and one-quarter the β -blocking activity of propranolol. It offers rapid onset of action (five to 10 minutes), smooth blood pressure control, and easy conversion to an oral regimen. It is useful in hypertensive encephalopathy, stroke, intracranial hemorrhage, cardiac ischemia, dissecting aneurysm, severe

post-operative hypertension, toxemia, and burns. Relative contraindications are left ventricular failure and 2nd- or 3rd-degree heart block. Labetalol can be used for hypertension due to MAOI crisis or pheochromocytoma, but it may actually raise blood pressure if β-blockade occurs out of proportion to blockade of vasoconstricting α-adrenergic receptors.

Labetalol has been touted for treatment of hypertension and cardiac ischemia associated with crack cocaine use even though it has not yet been shown to block the coronary vasospasm caused by crack cocaine. ¹⁰ Common side effects include fatigue, headache, paresthesias, nausea, and vomiting.

Usually, a 20 mg (4 mL) dose is given intravenously over five minutes with additional injections of 40 to 80 mg at 10- to 15-minute intervals until target blood pressure is reached or a total dose of 300 mg has been given. Or one can add 500 to 1,000 mg of labetalol to a liter of 5% dextrose solution and infuse at 1 to 2 mg/min. After the desired blood pressure or maximum total dose is reached, the infusion should be discontinued. Patients receiving intravenous labetalol often develop orthostatic hypotension; they should be kept supine for three to six hours after the infusion is stopped. Blood pressure should be carefully monitored for six hours. When supine diastolic blood pressure rises by 10 mmHg, oral therapy is initiated with 100 to 200 mg twice daily.

Propranolol and other B-blockers have a limited role in hypertensive crises; these agents usually should not be used by themselves. Propranolol has a rapid onset of action and easy conversion to oral therapy, but has an unpredictable antihypertensive effect. It can be used for dissecting aneurysm (with nitroprusside or nitroglycerin) and in cardiac ischemia. If pheochromocytoma is suspected, Bblockers should be used only after adequate α-blockade is achieved. Relative contraindications include heart block, heart failure, and asthma. Bradycardia, fatigue, bronchospasm, and heart failure are side effects.

Propranolol should be given intravenously over three to five minutes. It is wise to start with a very small dose, followed by small graded increases every five to 30 minutes until the target heart rate is achieved. Atenolol and metoprolol are β_1 -selective agents with half-lives of six to seven hours. Five mg can be given by intravenous bolus and repeated once or twice in five to 10 minutes, followed by 50 mg given by mouth. The short-

acting, β_1 -selective preparation, esmolol, is not approved for use in hypertension. The β -blockers should be used primarily as adjunctive agents to prevent reflex tachycardia or increased shear stress on the aorta when using a potent vasodilator to treat dissecting aortic aneurysm.

Trimethaphan, a potent adrenergic and cholinergic ganglion blocker, is used most often as parenteral monotherapy for dissecting aneurysm. It has rapid onset and does not increase cardiac output, but it has several major disadvantages. An intensive care unit and arterial line are mandatory. Patients often become refractory to the drug after 24 to 48 hours. It has extremely unpredictable hypotensive activity. Small increases in infusion rate can yield drastic reductions in blood pressure. Accordingly, it is customary to elevate the head of the bed when using trimethaphan. If the patient becomes hypotensive the head of the bed is lowered to a flat or Trendelenburg position.

Trimethaphan can be used in hypertensive encephalopathy, intracranial or subarachnoid hemorrhage, left ventricular failure, MAOI crisis, pheochromocytoma, and stroke. It should not be given to patients who are hypovolemic, anemic, near term pregnancy, or nursing. Side effects include urinary retention, pupillary dilation, xerostomia, ileus, nausea, and tachyphylaxis.

Phentolamine is a nonselective α -adrenergic blocker specifically indicated for pheochromocytoma, MAOI crisis, or the withdrawal of clonidine, methyldopa, guanabenz, or guanfacine. It has a rapid onset of action and can be used intramuscularly or intravenously. Excessive side effects (tachycardia, miosis, nasal congestion, postural hypotension, arrhythmias, and cardiac arrest) limit its usefulness, and many clinicians prefer nitroprusside even for pheochromocytoma. Phentolamine is supplied as 5 mg lyophilized powder that must be reconstituted in I mL of sterile water; 0.5 to 1.0 mg is given intravenously. If there is no precipitous drop in blood pressure, 5 mg is given intramuscularly or intravenously. A blood pressure drop of more

than 35/25 mmHg in two minutes suggests the presence of pheochromocytoma. Repeated boluses of 5 to 20 mg may be given, but the brief duration of action (minutes) makes this strategy impractical. Therefore, 200 to 500 mg is usually added to one liter of 5% dextrose and infused at 0.2 to 0.5 mg/min. Phentolamine can be converted to oral dosing at 50 mg every four to six hours.

Reserpine, important in the 1960s, is rarely used for hypertensive emergencies now. Smooth blood pressure control is possible, but slow onset of action and high incidence of somnolence, depression, bradycardia, and activation of peptic ulcer limit its usefulness. Reserpine is strictly a third-line agent, to be avoided completely in cases of head trauma, pregnancy, and whenever level of consciousness must be monitored.

Enalaprilat, an angiotensin converting enzyme (ACE) inhibitor, is the active metabolite of enalapril. The intravenous formulation may be helpful in patients with severe hypertension in the setting of congestive heart failure or scleroderma renal crisis. ACE inhibitors should be avoided in pregnancy, particularly in the second and third trimesters, and used with caution in patients susceptible to hyperkalemia.

Furosemide (and other loop diuretics) can be useful adjuncts in most hypertensive emergencies. They are potent, have rapid onset of action, and are easy to convert to oral therapy. Diuretics prevent salt retention and reduce plasma volume, which often enhances antihypertensive effects of other agents. Whether diuretics are helpful in renin-dependent hypertension is less clear, but they may have direct vasodilating properties when given intravenously. The safety of diuretics in pregnancy is controversial. Side effects include nausea, vomiting, hypokalemia, and auditory impairment. In patients with normal renal function, 10 to 20 mg of furosemide given intravenously over one to two minutes is usually sufficient. Patients with renal insufficiency may need up to 200 mg over 10 to 30 minutes; it is

contraindicated in anuria.

Verapamil, a calcium channel blocker, is useful in treating severe hypertension, but its role in hypertensive emergencies is not yet established and its use must still be considered experimental. It offers rapid onset of action (one to five minutes), easy conversion to an oral regimen, and seems a logical choice for severe hypertension associated with angina, supraventricular tachycardia, or dissecting aneurysm. Side effects include nausea, atrioventricular conduction delay, and sinus arrest. Similar considerations apply to intravenous diltiazem, which has been approved for use in arrhythmia but not yet for hypertension.

Magnesium sulfate (1 to 5 grams given intramuscularly) is used in preeclampsia and eclampsia. Magnesium is a vasodilator, but typically reduces blood pressure only at dangerously high doses (high enough to cause cardiorespiratory depression). It is rarely used by itself, even to treat hypertension associated with toxemia of pregnancy.

Oral Antihypertensive Agents

During the past 10 years intensive oral therapy (oral loading), particularly with clonidine and nifedipine, has become popular for treating "hypertensive urgencies." Oral regimens offer easy transition to long-term treatment, and they avoid intensive care unit admission. Oral regimens are usually used in asymptomatic or minimally symptomatic patients with severe hypertension (but without papilledema) who can tolerate reduction of blood pressure over hours to days.³

Despite their popularity and simplicity, the use of oral-loading regimens has been challenged, primarily because severe side effects may violate the rule of "First, do no harm." For example, sublingual nifedipine can cause severe overshoot hypotension, particularly in patients already receiving potent antihypertensive agents, and clonidine may produce lethargy and altered mental status. 11 Ferguson

and Vlasses ask physicians to consider: "What is the actual risk for blood pressure complications in...the next 24 hours if left untreated?" "Would [the patient's] care have been compromised by simply dispensing a limited supply of an effective antihypertensive agent with a follow-up evaluation in several days?" They say that the "urgency" of a case "may be more in the mind of the physician instituting treatment in the emergency room than a real threat to the patient." 12

A recent study showed no benefit from loading with oral clonidine compared to using a less aggressive outpatient regimen for severe asymptomatic hypertension.13 Fagan even challenged the dictum that blood pressure must be lowered immediately, saying that this position "has no scientific basis and is an emotional response by emergency room physicians...."14 That may be too strong a stand, but clearly oral-loading regimens can be overused. Treating physicians should carefully consider potential risks and benefits of aggressive oral regimens before treating patients with a "hypertensive urgency."

Of course, oral-loading regimens can be equally inappropriate in patients with true hypertensive emergencies. Two findings indicate a poor overall prognosis, even with only mild symptoms: hypertensive encephalopathy, 15 and papilledema (Fig. 1, at right). The presence of either should *always* dictate treatment as an emergency even without other serious clinical symptoms.

Warnings aside, oral-loading regimens may be useful in some situations. Physicians should be familiar with the drugs available for such use, but should consider the relative risks and benefits of giving an initial oral load versus simply starting an effective agent in standard doses and following closely.

Clonidine, a centrally acting α_2 -adrenergic agonist, is a potent oral antihypertensive that induces rapid effects without reflex tachycardia. Decreased cerebral blood flow and production of atrioventricular conduction delay are possible disadvantages. Other side effects include anorexia, nausea, impotence, and Type I

2° heart block. Clonidine can be used when blood pressure needs to be controlled within hours such as after surgery, in burn patients, in those withdrawing from methyldopa, clonidine, or guanabenz, or in severe hypertension associated with renal insufficiency. Because of side effects, including sedation and anxiety, 11 clonidine loading is contraindicated in patients with head trauma, intracranial or subarachnoid hemorrhage, stroke, cardiac ischemia, left ventricular failure, or dissecting aneurysm.

The initial dose is 0.2 mg by mouth. Effects peak in 10 to 60 minutes, and last two to six hours. A further 0.1 mg is given if diastolic blood pressure does not drop by 20 mmHg or to 110 mmHg after one hour; this is repeated every hour until 0.6 mg has been given or the target blood pressure is reached.

Nifedipine, a calcium channel blocker and vasodilator widely advocated for hypertensive urgencies, can be given sublingually, rectally (onset of action in five to 10 minutes) or orally (onset in 20 to 30 minutes). It is suitable when blood pressure must be controlled in minutes to hours (for example, in left ventricular failure, cardiac ischemia, intracranial or subarachnoid hemorrhage, and hypertensive encephalopathy). It is not indicated for dissecting aneurysm, pheochromocytoma, or toxemia. Side effects include dizziness, peripheral edema, headache, burning paresthesias, and nausea.

Typically, 10 mg is given orally, sublingually, or by retention enema. Effects last three to five hours. Because overshoot hypotension is common, it is prudent to aspirate 10 mg from the capsule into a syringe and give 5 mg sublingually as an initial dose. This minimizes any potential harm.

Captopril, an angiotensin converting enzyme inhibitor, may be helpful in cases of scleroderma renal crisis or of hemolytic-uremic syndrome with malignant hypertension refractory to nitroprusside. It is generally not used otherwise. Side effects include abnormal sense of taste, maculopapular rash, nausea, leukopenia, and proteinuria.

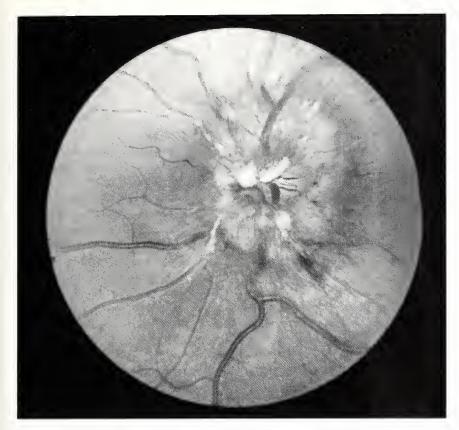


Fig 1: Grade 4 Keith-Wagener-Barker retinopathy. Note the numerous hemorrhages and exudates and indistinct disc margins (papilledema). Courtesy Dr. Bruce Shields.

In scleroderma renal crisis, 12.5 to 25 mg is given orally or sublingually. Blood pressure should drop significantly within 10 to 30 minutes, and persist for three to four hours. Thereafter, 25 to 50 mg should be given by mouth every six to eight hours and the dose titrated to a maximum of 450 mg/day. Coincident use of a diuretic can be helpful.

Minoxidil, a potent oral vasodilator, can be used in hypertensive emergencies when administered with a potent diuretic and ßblocker. This effective, but complicated, regimen has found few clinical advocates.

New Agents

Dilevalol, an isomer of labetalol, causes vasodilation due to selective β_2 -adrenergic receptorantagonism. Unlike labetalol, it has no α -adrenergic activity. Although not widely used, a preliminary study suggests that it may be a safe and effective

parenteral agent for hypertensive emergencies. The advantages, disadvantages, and indications are primarily those of labetalol.

Fenoldopam is a specific D₁ dopamine receptor agonist. Its plasma half-life is less than 10 min.; continuous intravenous infusion produces a rapid and sustained decrease in blood pressure. It causes a diuresis by increasing renal blood flow by 40% to 50% in hypertensive patients and may be an ideal choice for treating patients with severe hypertension and renal insufficiency.

Nicardipine is a calcium channel blocker with vasodilating properties similar to nifedipine. It rapidly lowers blood pressure when administered intravenously; the effects last 30 to 60 minutes. Heart rate increases slightly, and the most common side effects are flushing and headache. Like fenoldopam and dilevalol, it has not yet seen widespread clinical use.

The Best Choice in Given Situations

The best choice of antihypertensive agent for a given patient depends on presentation, physical examination, laboratory findings, and coexisting conditions. As already noted, the presence of papilledema or hypertensive encephalopathy is an alarming finding since both are associated with poor short- and long-term prognoses. The following section provides suggestions for the treatment of hypertensive emergencies in specific situations. The recommendations are not iron-clad rules—they are general guidelines that leave latitude for individual style.

Hypertensive encephalopathy is a syndrome of reversible neurological symptoms: obtundation, confusion, stupor, headache, nausea, visual disturbances, and vomiting.15 Unfortunately, the diagnosis can be confirmed only when neurological findings reverse after the blood pressure is lowered. The syndrome is thought to be due to cerebral edema resulting from poor cerebral hemodynamic autoregulation. Neurological findings are usually non-focal, but focal weakness or seizures can occur if there are coexisting disorders such as diabetes or atherosclerosis. Encephalopathy generally occurs at much higher blood pressures in patients with chronic hypertension than those with de novo hypertension.

Because patients with hypertensive encephalopathy have defective vascular autoregulation (and, therefore, pressuredependent blood flow), rapid reduction of blood pressure may cause cerebral ischemia. It is prudent to reduce blood pressure by no more than 25% to 30% during the first hour, by an equivalent amount during the next four to eight hours, and again during the subsequent 24 hours. If the neurological status deteriorates, the blood pressure should be allowed to rise slightly. Because the management of these patients can be complicated, easily titratable agents such as nitroprusside or labetalol are preferred with diazoxide and trimethaphan as alternatives. In certain settings, nifedipine may be considered. Agents that depress brain function

(reserpine, clonidine, methyldopa) should be avoided.

Strokes and transient cerebral ischemic attacks (TIAs) can either cause or be caused by severe hypertension. Treating hypertension in such settings can be tricky. Cerebral blood flow is pressure dependent as a result of defective autoregulation, and small increases or decreases in blood pressure can cause large changes in blood flow. Some experts advocate non-aggressive treatment of hypertension in the setting of stroke.16 However, if antihypertensive therapy would otherwise be indicated, stroke patients should be treated using the same regimen as for hypertensive encephalopathy. Nifedipine is not recommended because it can cause overshoot hypotension, and it is neither easily titrated or rapidly reversible.

Intracerebral hemorrhage, subarachnoid hemorrhage, or head trauma produce similar concerns about hypertension treatment as do stroke and
hypertensive encephalopathy. The impulse to decrease bleeding by lowering
blood pressure must be tempered by the
risk of causing cerebral hypoperfusion. It
is probably prudent to withhold
antihypertensive therapy if possible. If
not, then short-acting parenteral agents
are indicated because blood pressure may
be labile due to diffuse, episodic cerebral
artery spasm.

Grade 3 or 4 retinopathy combined with severe hypertension is extremely worrisome. In the absence of other acute symptoms or signs, grade 3 retinopathy (hemorrhages and exudates) does not constitute an emergent situation. In contrast, grade 4 retinopathy (papilledema) does constitute an emergency since it implies malignant hypertension and the danger of incipient vascular end-organ damage. Therapeutic agents should be chosen on the basis of co-morbid diseases and coincident signs and symptoms. Usually one administers a rapidly titratable, parenteral agent in an intensively monitored care unit. Less aggressive treatment is sometimes appropriate depending on physician judgment.

Aortic dissection is a condition in which the proper choice of antihypertensive agent is absolutely critical.¹⁷ Immediate reduction of blood pressure is essential to reducing shear force on the aorta. Rapid lowering of blood pressure to levels as low as possible without compromising organ perfusion is probably beneficial. Treatment choices include trimethaphan alone or nitroprusside plus a ß-blocker.

Vasodilators increase shear force and may worsen aortic dissection—they should not be used alone! This fact is crucial. Diazoxide, nifedipine, and hydralazine should not be used to treat hypertension in patients with aortic dissection. Even nitroprusside must not be administered until the patient is adequately B-blocked. A small dose of propranolol (preferred because of its relatively short duration of action) is given intravenously and doses repeated every 20 to 30 minutes until the desired lowering of heart rate is attained. Labetalol is an alternative monotherapy for aortic aneurysm because it has B-blocking capacities, and is a potent, easily titratable, parenteral antihypertensive drug.

MAOI crisis is a state of catecholamine excess precipitated when patients on monoamine oxidase inhibitors ingest foods rich in tyramine (wine, cheese, chocolate, beer, chicken liver) or take medications such as sympathomimetics, tricyclic antidepressants, or antihistamines. Phentolamine, a potent blocker of both α_2 - and α_1 -adrenergic receptors, is the standard treatment. However, it has many side effects, and nitroprusside or labetalol are excellent alternatives.

Pheochromocytoma, like MAOI crisis, is usually treated with phentolamine. Nitroprusside and labetalol are good alternatives. Special caution must be taken to avoid β -blockade without prior α -blockade, since this causes vasoconstriction and exacerbates hypertension.

Withdrawal of B-blockers or of central α_2 -adrenergic receptor agonist drugs (methyldopa, guanabenz, clonidine, guanfacine) may cause severe hypertension. The usual treatment is with

phentolamine, but labetalol, methyldopa, clonidine, and nitroprusside are acceptable. Illegal and recreational drugs such as crack cocaine, amphetamines, PCP, diet pills, and LSD may cause severe acute hypertension, usually due to catecholamine excess. Because hypertension develops acutely, stroke, hypertensive encephalopathy, and myocardial infarction can occur. Treatment choices are phentolamine, nitroprusside, or labetalol.

Malignant hyperthermia and spinal cord syndromes are associated with severe, but extremely labile, hypertension. Titratable parenteral agents such as phentolamine, nitroprusside, or labetalol are preferred.

Hypertension and pregnancy are a difficult combination. We want a safe and effective drug that is titratable and has few (and acceptable) side effects. Hydralazine and methyldopa are reasonably effective and relatively safe for both fetus and mother. Magnesium sulfate is a weak antihypertensive at best. Other agents have drawbacks that limit their use in pregnancy. Calcium blockers lower blood pressure, but inhibit labor and decrease uterine blood flow. Diazoxide can be given in mini-boluses, but also inhibits uterine contraction. Animal studies suggest that nitroprusside entails some fetal risk,18 but is a viable option if other agents fail. One must monitor thiocyanate and cyanide levels, and make every effort to rapidly taper the drip. Labetalol is potentially useful since it lowers blood pressure without inducing fetal distress.

Diuretics (which exacerbate volume depletion) and β-blockers (which reduce uterine blood flow) should be avoided. So should trimethaphan, which may cause meconium ileus or interact with succinylcholine to produce prolonged neuromuscular blockade.¹⁸

Acute renal failure can either cause or be caused by severe hypertension. Regardless, the blood pressure needs to be lowered without impairing renal blood flow or glomerular filtration rate. Nitroprusside is effective, but runs the risk of cyanide or thiocyanate toxicity; if used, it should be stopped as soon as possible. Alternative drugs include labetalol, nicardipine, enalaprilat, and nifedipine. Calcium channel blockers are well tolerated, especially in renal transplant patients. Calcium channel blockers and ACE inhibitors generally preserve renal blood flow and may be advantageous. However, ACE inhibitors can induce hyperkalemia, especially in patients with renal failure. Avoid \(\beta\)-blockers, which reduce renal blood flow and glomerular filtration rate.

Hypertension in scleroderma renal crisis and systemic lupus erythematosus is usually treated with nitroprusside, but oral captopril or intravenous enalaprilat may be effective even in patients refractory to nitroprusside. Diazoxide or labetalol are alternatives.

Extensive burns may result in severe, labile hypertension. Because of the lability, titratable drugs like nitroprusside, labetalol, or trimethaphan should be used. Nifedipine or clonidine may be reasonable in milder cases. Diuretics should be avoided because burns are often associated with volume depletion.

Post-operative bleeding may induce severe hypertension. The choice of treatment agent depends on the surgical procedure. In general, labetalol or nitroprus-

side are used, but diazoxide, nifedipine, and hydralazine are reasonable alternatives. The variable absorption of intramuscular hydralazine may lead to underor overdosing with profound hypotension.

Newly discovered severe hypertension is treated on the basis of clinical presentation and symptoms. In general, refrain from over-aggressive treatment. Asymptomatic or mildly symptomatic patients should be treated according to general guidelines. Patients with moderate to severe symptoms can be treated with either a parenteral or oral regimen. Remember, no absolute level of blood pressure constitutes a hypertensive emergency. And remember, too, that funduscopic and neurological examinations are absolutely critical when evaluating patients with severe hypertension.

Long-Term Management of Severe Hypertension

Treatment of chronic severe hypertension almost always requires medication unless a treatable cause of secondary hypertension (renovascular disease, pheochromocytoma) has been identified. Weight loss, sodium restriction, aerobic exercise, and decreased alcohol intake are useful adjuncts, 19,20 but more or less

permanent drug treatment is almost always needed.

Conclusions

Hypertensive emergencies are not rare but they are treatable. The most important decision is whether or not to treat as an emergency; decisions about whether to admit the patient to the hospital and which agent(s) to use follow thereafter. The choices depend largely on characteristics of the patient at presentation and the treating physician's judgment and style. It bears repeating the importance of carefully considering the relative risks and benefits of aggressive treatment. If the decision is to treat as an emergency, then potent, easily titratable agents are preferred despite the fact that they consume nursing and medical resources.

Oral regimens can be used to treat severe hypertension in some settings. Before embarking on an aggressive oral-loading regimen, the physician must decide whether rapid oral loading offers any advantage over simply starting effective oral agents at normal doses and following the patient closely. A final point is that one should start oral agents along with parenteral treatment because, in most cases, the patient will need a long-term oral regimen to achieve the goal of well-controlled blood pressure.

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Carolina Physician's Bookshelf

William G. Porter, MD

My Own Country, by Abraham Verghese New York: Simon and Schuster, 1994, 347 pages, \$23

In 1985, when Dr. Abraham Verghese began his work as an infectious disease specialist in Johnson City, Tennessee, the citizens of that small mountain town viewed AIDS as an urban plague, irrelevant to their well-ordered, insulated lives. By the time Verghese left Johnson City four years later, AIDS had insinuated itself into the consciousness and conscience of the community, claimed the life of many a native son, darkened the lives of parents, spouses, and loved ones. AIDS was no longer just a disease of faceless addicts and gays in faraway cities, but a killer just down the street, in the next room, even the same bed.

My Own Country is Verghese's first-person account of the early years of the AIDS epidemic in Johnson City, told from the perspective of a physician who was the community's only AIDS expert, and one of the few people who approached the disease and its sufferers with a mind and heart unburdened by fear or prejudice.

It is ironic that Verghese, born in Ethiopia of Christian Indian parents, became the founder of what amounted to a medical mission in the Appalachians, thousands of miles from his native land. After his medical residency at the Johnson City Medical Center, he went to Boston for a fellowship in Infectious Disease, then came back to practice in Johnson City. Medical care in America's small towns has increasingly become the province of Indians, Pakistanis, and other international graduates willing to work in the isolated outposts disdained by American graduates. It is doubly remarkable, then, that Verghese could consider the Tennessee mountains his "own country," and that the denizens of those hills and hollows, where folks don't take all that kindly to strangers, much less foreigners, could learn to accept, even revere Verghese, who was demon-

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strably more interested than his American-born colleagues in treating and preventing AIDS.

A gifted writer whose work has appeared in *The New Yorker*, *Granta*, and other literary periodicals, Verghese writes with a novelist's flair, spinning stories about AIDS patients from every social stratum, from the drag queen at the gay bar to the wealthy executive whose tainted blood transfusion condemned him and his wife to a disease he deemed so shameful he kept it secret even from his children. Again and again Verghese encounters young gay men with AIDS who had left Johnson City for the sexual freedom and opportunities of San Francisco and other cities and have now come back home to die. The love and acceptance they find among once-hostile families and friends is a bright spot in an otherwise dark narrative.

As a heterosexual male, I have never found an account of homosexual life that helped me understand what it must be like to be gay. Even books like Paul Monette's Becoming a Man and David Leavitt's The Lost Language of Cranes, leave me bewildered that some males find other males sexually attractive, and are able, indeed driven, to act on their libidinous leanings. By contrast, as a physician who works with AIDS patients, I found the terrain of My Own Country comfortably familiar. Verghese is able to take people where he finds them and to establish durable relationships with almost every patient and family, never mind their cultural or sexual quirks. He frets, as most doctors do, that his attention is distracted by bureaucratic demands that sap the energy he would rather devote to the scientific challenges of the epidemic and the needs of his patients. Passionate as he is about his work and his patients, he can still laugh a little that the hospital where he works is called The Miracle Center. And, like a spectator observing his professional self, he muses about the precision and order of his physical diagnosis—inspection, palpation, percussion, auscultation—and the small difference his diagnostic skills make. AIDS stays one step ahead of his sensitive fingers and attentive ears.

Verghese pays a high price for immersing himself in AIDS work—deterioration of his own family life, unremitting fatigue, and the depressing, sleep-disturbing knowledge that no matter how skillfully and compassionately he treats his patients, they are all going to die. At the end of his story, Verghese

Continued on page 315

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Chest Pain Presenting as Ischemic Heart Disease

Congenital Absence of the Pericardium

Rhonda L. Larsen, PA-C, Victor S. Behar, MD, Scott R. Brazer, MD, James Chen, MD, and Christopher M. O'Connor, MD

The role of the pericardium has been extensively studied. Some say that the pericardial sac encloses the fluid that lubricates the heart and that it protects the heart from the surrounding mediastinal structures. In addition, the pericardium can also restrict cardiac volume, acting upon both the right and left ventricles as well as causing the diastolic coupling of the two ventricles seen in pericardial tamponade.

Defects of the pericardium may be asymptomatic or they may produce symptoms such as atypical chest pain or hemodynamic compromise secondary to herniation of the ventricle or atrial appendage through the pericardial defect. We describe here a patient whose chest pain mimicked angina and whose "non-invasive" cardiac studies seemed to point to coronary artery disease.

Our Patient

A 71-year-old retired insurance executive, with a history of hypertension for 11 years, but no smoking history, complained of recurrent chest pain that had waxed and waned for seven years. He described a dull, substernal, positional pain without radiation or associated shortness of breath, diaphoresis, or nausea. His discomfort was relieved with repositioning and did not change with deep inspiration. The pain had been increased by exertion during the several weeks prior to his evaluation.

The patient had been seen seven years earlier for increasing shortness of breath and

fatigue. At that time he had described a burning, substernal pain without radiation or associated symptoms. He was hospitalized and myocardial infarction was excluded. Cardiac catheterization revealed normal coronary arteries, and normal overall left ventricular contractility. There was dilatation of the right ventricle but normal right heart pressures. He was given a diagnosis of right ventricular dysplasia.

At his most recent visit, physical examination revealed a well-appearing man in no distress. Blood pressure was 138/90; pulse, 90/min. and regular; respirations, 18/min.; and weight, 182 lbs. There was no jugular venous distention, no carotid bruits, and carotid upstrokes were normal. The point of maximum cardiac impulse was slightly inferiorly and laterally displaced. Auscultation of the heart revealed a normal S_1 with a widely split S_2 ; an S_4 gallop sound was heard, but no murmur. The abdominal aorta was not enlarged and there was no bruit. Femoral pulses were normal bilaterally. The pedal pulses were present, and there was no edema.

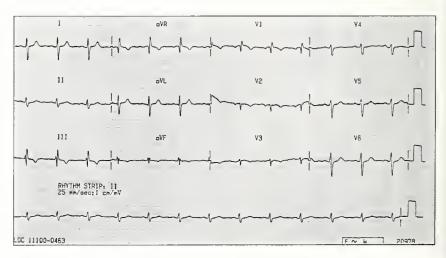


Fig 1: 12 ECG showing right axis deviation and incomplete right bundle branch block.

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Electrocardiogram showed normal sinus rhythm, rate 77. There was right axis deviation (150°), R wave in V_1 and RSR' in V_2 (Fig. 1). Chest radiograph showed the heart to be displaced to the left, with the right heart border overlying the spine. The left pulmonary artery was prominent (Fig. 2, A-B).

During a thallium angiographic study he exercised for five minutes to a maximum heart rate of 155 beats/min. The perfusion study was interpreted as showing infarction of the septal and anterior walls, ischemia of the inferior and inferoapical walls, and combined infarct and ischemia of the apical wall. He had experienced no electrocardiographic changes or chest pain during exercise. A two-dimensional echocardiogram demonstrated normal left ventricular function with trivial mitral regurgitation. There was right ventricular hypertrophy and right ventricular dilatation, but no evidence of right-to-left shunting by microcavitation study. There was no effusion.

A cardiac catheterization revealed normal left ventricular function with an ejection fraction of 52% and the absence of any significant coronary disease. Due to the marked displacement of the heart in his chest cavity, the electrocardiographic changes and difficulty encountered in cannulating his coronary arteries, the possibility of a congenitally absent left pericardium was raised. A crosstable lateral chest x-ray confirmed the diagnosis (Fig. 3, next page).

Discussion

The congenital absence of the pericardium is rare, being found in approximately one in 10,000 postmortem examinations.¹ In reported cases of pericardial defects, the ratio of men to women is 3:1.² The defect is thought to be caused by early atrophy of Cuviers' left duct, which results in an inadequate blood supply to the pleuropericardial membrane, the precursor of the pericardium.

The left side of the pericardium is defective in approximately twothirds of reported cases. One study found complete absence of the left pericardium in about half of the cases, while another study, that included postmortem examination, found that most defects involved the entire left side of the heart, with the remaining cases being partial defects.

In most of the reported cases, patients have been asymptomatic³ and symptoms, when present, are vague. Commonly reported symptoms are chest pain, dizziness, dyspnea, and syncope. Chest pain that occurs may be due to abnormal torsion and strain on the great vessels, secondary to the absence of the stabilizing function of the pericardium and a resultant greater mobility of the heart.²

Findings on physical exam are generally non-specific, but a soft systolic ejection murmur and lateral displacement of the apical impulse on the chest wall (as in our patient) have been recorded.³

The electrocardiogram is frequently abnormal. The electrical axis of the QRS complex may be vertical or there may be right axis deviation. In addition, there is often RSR' in lead V₁ (or incomplete right bundle branch block). It is thought that the electrocardiographic changes are probably related to levoposition of the heart.⁴

The primary echocardiographic findings in patients with con-





Fig 2A (top): Upright PA chest x-ray showing the right heart border overlying the spine and displacement of the heart to the left with prominence of the left pulmonary artery. 2B (bottom): Upright lateral chest x-ray.

genital absence of the pericardium are right ventricular dilatation and abnormal interventricular septal motion.⁵ These findings have been described in other conditions, such as right ventricular volume overload, atrial septal defect, tricuspid insufficiency, and other valvular conditions as well as in patients without evidence of heart disease.⁶ The findings are not specific for absence of the pericardium, but when considered with other clinical

data they may help make a diagnosis and avoid unnecessary invasive procedures.

The chest x-ray is particularly useful in these patients as illustrated by our patient. The characteristic plain radiographic findings include displacement of the heart to the left. The right cardiac border is usually not visible because it overlies the spine. The pulmonary artery segment is prominent and well demarcated, producing a characteristic convexity between the contour of the aortic knob and the ventricular segment. Radiolucency may be seen when air-containing lung is present between the ascending aorta and main pulmonary artery and between the left hemidiaphragm and the base of the heart. In our patient the heart was seen to be left-sided, with the right heart border overlying the spine. The supine film revealed that the heart shifted posteriorly to overlap the thoracic spine leaving a much wider than normal retrosternal clear space.

An unusual finding in our patient was that his thallium perfusion scan seemed to indicate ischemia. We found no other reported cases of abnormal perfusion scans in such patients. Since our patient's coronary arteries were normal, we propose to explain the abnormal thallium images as due to absence of a stabilizing pericardium, which therefore precludes an accurate and consistent perfusion imaging. Changing from an upright position during exercise to a supine position during the actual perfusion scan may cause an artifactual "false positive" defect.

In any case, congenital absence of the left pericardium, although rare, may present as atypical chest pain. Once considered, the diagnosis is easily made by appropriate chest x-ray. The prognosis of our patient is for a normal life span. There are no reports of sudden death in patients with complete left-sided pericardial defects and long-term prognosis does not seem to be adversely related to absence of the left pericardium.²

Our patient has continued to lead an active life without further complications from a cardiovascular standpoint. Fortunately, his chest pain has diminished somewhat, possibly as a result of his having been given a definitive diagnosis.

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Fig. 3: Supine lateral chest x-ray showing increased retrosternal airspace and the heart overlying the thoracic spine.

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Lung Mass and Altered Immunity

Not Always What It Seems

Richard W. Zollinger, II, MD, Frederick H. Taylor, MD, Vittal B. Shenoy, MD, T. Arthur Edgerton, MD, and Charles D. Harr, MD

In this era of AIDS and strange medical presentations related to it—in particular, what we would call strange intrapulmonary infections (such as fungal or parasitic diseases)—we present a patient who breaks the pattern. Our patient has had several unusual problems but he does not, in fact, have HIV infection.

Our Patient

A 73-year-old white man came to us for resection of a 1 cm non-calcified nodule in the upper lobe of the left lung. He had previously smoked, but had quit more than 20 years ago. In 1981 a right cerebral occipital lesion had been detected at the Durham VA Medical Center and he had undergone two craniotomies for complete resection of a brain abscess. Abscess fluid grew out a fungus, *Cladosporium trichoides*. He continued to have post-operative left visual field defects as expected.

In the post-operative phase he developed pneumonia with secondary pleural effusion. Culture of pleural fluid grew *Nocardia asteroides*. He was treated with amphotericin and flucytosine and trimethoprim-sulfamethoxazole. He was

The authors are with Charlotte Cardiothoracic Surgical Associates, PA, 300 Billingsley Road, Suite 103, Charlotte 28211. discharged after completion of therapy.

One month after discharge, a CT scan again showed a brain abscess and he underwent complete right occipital lobectomy. He was treated for one year with antifungal therapy, and actually underwent subsequent treatment for a systemic fungal infection later in the 1980s.

In 1993, he presented to our service with an asymptomatic lung nodule. There was no history of prior blood transfusion or homosexuality, intravenous drug injection, sexual contact with high-risk partners, immunosuppressive medications, or radiation therapy.³

The patient underwent bronchoscopy followed by thoracotomy with left upper lobectomy in March 1993. His recovery was uneventful except for low-grade fever; he was discharged on his seventh post-operative day. Pathology revealed *Cryptococcus*, but subsequent cerebrospinal fluid examination was negative. He was discharged on fluconazole, 200 mg a day, to be followed by infectious disease specialists as an outpatient.

Laboratory Investigations

In 1981-1982 serum protein electrophoresis had shown a mild polyclonal gammopathy. Skin responses to *Candida* and mumps antigens were positive (that is, he was not anergic). Study of blood lymphocytes showed a decrease in total T

cells of which 70% to 75% were suppressor T cells and none were helper T cells (as defined by response to OKT-4 antibody).¹

During his most recent admission, scrum immunoglobulin levels were normal, serum HIV antibody was non-reactive, and total lymphocyte count was normal, with normal absolute counts and percentages of T and B lymphocytes. However, the absolute count and percentage of suppressor/cytotoxic T cells (identified as reacting to CD8 antibody) was increased at 2240 cells/mm3 (80.2% of total T cells) while the absolute count of helper T cells (identified as reacting to CD4 antibody) was low-normal at 588 cells/mm3 (20.8% or total T cells). The ratio of helper to suppressor T cell ratio was 0.26 (normal 1.3), consistent with a persistent abnormality in cellular immunity. Testing of serum and cerebrospinal fluid for cryptococcal antigen as well as routine culture, mycobacterial smear and culture, fungus culture, and VDRL testing of cerebrospinal fluid were negative. Urine culture for fungus was negative. Testing for HTLV was not performed.

Pathologic Exam

The left upper lobe specimen contained a 2.6 cm, ill-defined brownish parenchymal mass that represented an organizing chronic pneumonia with non-caseating granulomas and numerous yeast. The

yeast were of variable size and shape and were positive on Periodic Acid-Schiff and Fontana-Masson staining and resistant to diastase. compatible with a diagnosis of Cryptococcus infection (Fig. 1). Hilar lymph nodes were anthracotic but contained no granulomas or cryptococcal organisms. Cultures of the left upper lobe mass grew Cryptococcus neoformans. Mycobacterial smear and culture was negative. There was no evidence of malignancy.

Discussion

The cause of our patient's prolonged cellular immune abnormality is not known. His HIV serologic status currently is

negative. His helper/suppressor ratio was decreased (0.26) with low normal CD4+ helper T cells (588 cells/cu mm) and increased CD8+ suppressor/cytotoxic T cells (2240 cells/cumm); the CD4+helper T cells constituted 20.8% of the total number of T cells analyzed. This patient does not appear to fall within the provisional case definition for idiopathic CD4+ T-lymphocytopenia outlined by the Centers for Disease Control and Prevention (which would require an absolute count of less than 300 CD4+ cells/mm3 or that the percentage of CD4+ cells be less than 20% of total T cells on two occasions. He does satisfy the criterion of having no evidence of HIV infection).2

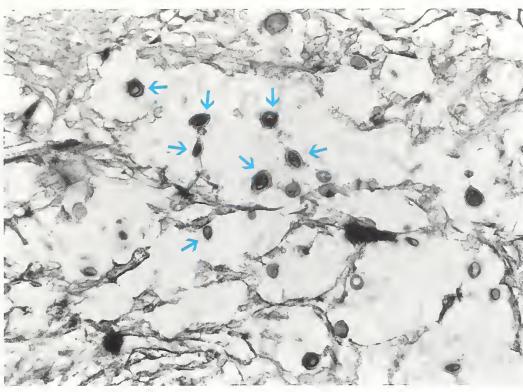


Fig 1: Pleomorphic, encapsulated, single yeast forms, such as those at the arrows, are consistent with Cryptococcus because they are Periodic Acid-Schiff positive and diastase resistant (that is, mucin positive).

Stobo has emphasized the importance of suppressor T-cell function in determining clinical response to a variety of fungal infections, and our patient probably reflects the outcome of abnormal Tcell function.4 Our patient's case is fascinating because it represents a 12-year survival from the original cerebral fungal abscess in an otherwise apparently normal host who has subsequently developed one more episode of fungal disease and one of nocardiosis. He appeared to have abnormal T-cell counts in 1982 and was again noted, on the most recent Tcell analysis, to have ratios altered from normal. His survival in the face of such altered immune responses is unusual. As of 1981, only two patients had been reported to survive as long as one year and the first was reported in 1952.

It is interesting that, in this age of the immune-compromised hosts and a resultant multiplicity of thoracic diseases, we have come upon a patient who has a clearly abnormal, but relatively stable, immune state. Unlike those with HIV infection, he has shown no inexorable downhill trend, and this allows him to survive and lead a reasonably active life—except for the interludes of systemic fungal infections and the need for surgical and antibiotic interventions.

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The Fetal Diagnosis and Treatment Center

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placing her a long way from home. Since the emotional and physical well-being of all members of the family is the guiding principle of the center, not all patients referred are delivered at the tertiary hospital. Many conditions, such as hydrocephalus, do not require immediate attention by a pediatric surgical or medical specialist, and in those cases the referring physician may perform the delivery (see Case 3). In other circumstances, exemplified by Cases 1 and 2, immediate intervention by neonatologists or surgeons is needed at delivery, which should take place at the designated tertiary center.

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the center and the lack of a control group make scientific analysis of the efficacy of our approach difficult. Nevertheless, based on our three-year experience, we feel that the concepts of personnel, equipment, and facilities used in the Fetal Diagnosis and Treatment Center appear to be valid. \square

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Submit a cover letter and either a 3 1/2-inch hard disk or 5 1/4-inch floppy computer disk that contains the text written in MS DOS compatible format (WordPerfect, Microsoft Word, Displaywrite, or ASCII), and at least one hard copy of the text. (No disks are necessary for Letters to the Editor unless particularly lengthy.) Make sure text is double-spaced, with one-inch margins, typed on one side of each sheet of paper. Title page should include addresses, and telephone and facsimile numbers of the corresponding author.

Submit illustrations, in duplicate, in the form of highquality color 35mm slides or 5-by-7-inch or 8-by-10-inch glossy photographs, or as black-and-white glossy prints (5by-7-inch or 8-by-10-inch). Label all illustrations with author's name, number them sequentially according to their position in the text, and indicate the orientation of the images, if necessary. Do not write directly on the backs of prints. This can damage them. If figures require printing in four-color process, the author may be asked to pay printing fees or a portion thereof.

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leaves Johnson City, no longer able to shoulder the unrelenting burden of so many patients and so much sadness. He packs his wife and children into the family station wagon and sets out for Iowa and a less-demanding job, though one that will still involve treating AIDS. Driving through the night, he muses, "I have lived for five years in a culture of disease, a small island in a sea of fear...It is hard to live in these circumstances, despite the acts of tenderness...But it is also hard to pull away....Never before Johnson City have I felt so close to love and pain, so connected to other people....I remember the acts of human kindness that illumine our world."

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Aphorisms of the Month

Daniel J. Sexton, MD, Editor

Old Age: A Pessimist's View

Tobacco, coffee, alcohol, hashish, prussic acid, strychnine, are weak dilutions: the surest poison is time.

-Ralph Waldo Emerson, 1803-1882

Man can have only a certain number of teeth, hair, and ideas; there comes a time when he necessarily loses his teeth, hair, and ideas.

—Voltaire, 1694-1778

The blemishes of the mind, like those of the face, increase with age.

—Duc François de la Rochefoucauld, 1613-1680

But in the decline of life shame and grief are of short duration; whether it be that we bear easily what we have borne long, or that, finding ourselves in age less regarded, we less regard others; or, that we look with slight regard upon afflictions, to which we know that the hand of death is about to put an end.

-Samuel Johnson, 1709-1784

After a man is 50 you can fool him by saying he is smart, but you can't fool him by saying he is pretty.

-Ed Howe, 1853-1937

To be 70 years old...is like climbing the Alps. You can reach a snow-crowned summit, and see behind you the deep valley stretching miles and miles away, and before you other summits higher and whiter, which you may have strength to climb, or may not. Then you sit down and meditate and wonder which it will be.

-Henry Wadsworth Longfellow, 1807-1882

The principle of minimal interference is paramount in the management of the elderly. The older a patient, the less his way of life should be disturbed. Destruction of an established pattern of life may result in confusion and tragedy. The young amorphous personality can usually be vigorously molded without danger. In contrast, the older, more rigid personality is like a crystal, easily shattered by unwise impacts.

—David Seegal, 1899-

As it can be maintained that all the great advances have come from men under 40, so the history of the world shows that a very large proportion of the evils may be traced to the sexagenarians—nearly all the great mistakes politically and socially, all of the worst poems, most of the bad pictures, a majority of the bad novels, [and] not a few of the bad sermons and speeches. —Sir William Osler, 1849-1919

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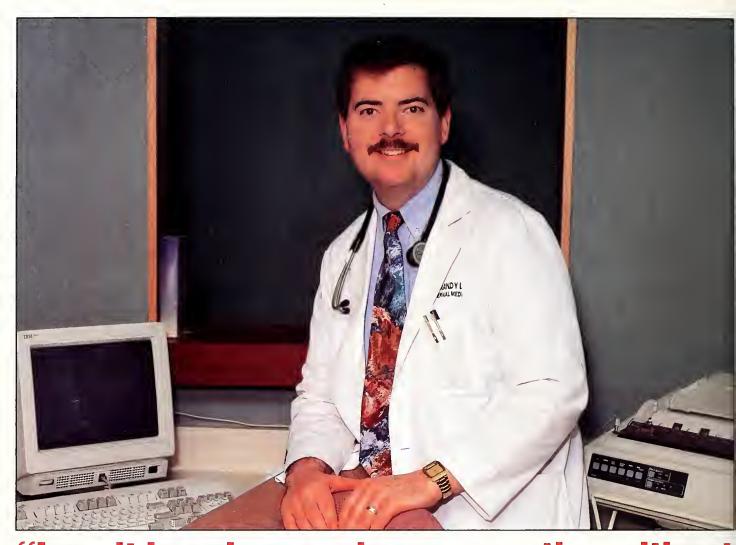
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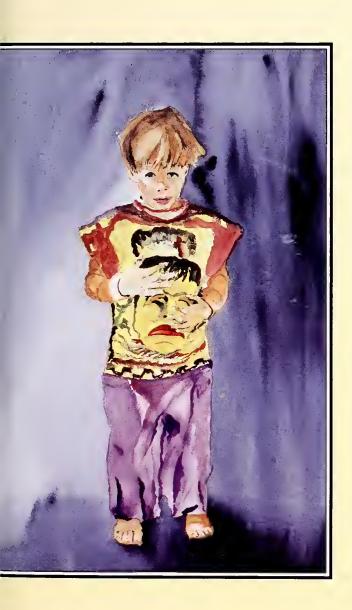
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P=0.01. Adapted from Silvis et al.1*1

P=0.004. Adapted from Gough et al.2*

*These trials used the currently recommended dosing regimens of ZANTAC (150 mg h.s.) and cimetidine (400 mg h.s.). A comparison of other dosing regimens has not been studied. The studied dosing regimens are not equivalent with respect to the degree and duration of acid suppression or suppression of nucturnal acid. The superiority of ZANTAC over cimetidine in these trials indicates that the dosing regimen currently recommended for cimetidine is less likely to be as successful in maintenance therapy.

Percent estimates are determined by life-table estimates. If crude-rate estimates were used, percentage of patients ulcer free after 1 year would be 88% for ZANTAC and 71% for cimetidine. All patients were permitted p.r.n. antacids for relief of pain.

- The safety profile of ZANTAC is confirmed in over 13 years of use and over 200 million patient treatments worldwide.*
- Low incidence of side effects.

Headache, sometimes severe, was the most frequently reported side effect in controlled clinical trials, with an incidence rate not significantly different from placebo.³

'Glaxo estimate from worldwide data.

In DU Maintenance Therapy



Please see brief summary of Prescribing Information on adjacent page.

References: 1. Silvis SE, Griffin J, Handin K, et al. Final report on the United States multicenter trial comparing parity fine to climatinine as maintenance therapy following healing of due dend ulper. J Clin Gastroenten J. December 19: 5;7:4-2-187.

2. Gruph KR. K. mann MG, Bardhan KC, et al. Pennit fine and climatinine in prevention of due tenal ulper relatives; and uniteblind, ran it missed, multicentral comparative trial. Lancet September 22, 19: 4;2:65e-62.3. Data on file. Glaveline.



BRIEF SUMMARY

Zantac® 150 and 300 (ranitidine hydrochloride) GELdose™ Capsules Zantac® 150 (ranitidine hydrochloride) EFFERdose™ Tablets

Zantac® 150 (ranitidine hydrochloride) EFFERdose™ Granules

Zantac* (ranitidine hydrochloride) Syrup

The following is a brief summary only. Before prescribing, see complete prescribing information in Zantac* product labeling

Partial Property and the property of the prope

CONTRAINDICATIONS: Zantac* is contraindicated for patients known to have hypersensitivity to the drug or any of the ingredients (see PRECAUTIONS).

drug or any of the ingredients (see PRECAUTIONS).

PRECAUTIONS: General: 1. Symptomatic response to Zantac* therapy does not preclude the presence of gastric malignancy. 2. Since Zantac is excreted primarily by the kidney, dosage should be adjusted in patients with impaired renal function (see OOSAGE AND ADMINISTRATION). Caution should be observed in patients with hepatic dystunction since Zantac is metabolized in the liver. 3. Rare reports suggest that Zantac may precipitate acute porphyric attacks in patients with acute porphyria. Zantac should therefore be avoided in patients with a history of acute porphyria. Information for Patients: Phenylkelonurics: Zantac* 150 EFFERdoseTM Granules contain phenylalanine 16.84 mg per 150 mg of ranifidine.

Laboratory Tests: False-positive tests for urine protein with Multistix* may occur during Zantac therapy, and therefore testing with sulfosalicylic acid is recommended.

Drug Interactions: Although Zantac has been reported to bind weakly to cytochrome P-450 in vitro, recommended doses of the drug do not inhibit the action of the cytochrome P-450-linked oxygenase enzymes in the liver. However, there have been isolated reports of drug interactions that suggest that Zantac may affect the bioavailability of certain drugs by some mechanism as yet unidentified (e.g., a

Zantac may affect the bioavailability of certain drugs by some mechanism as yet unidentified (e.g., a pH-dependent effect on absorption or a change in volume of distribution). Increased or decreased prothrombin times have been reported during concurrent use of ranitidine

and warfain. However, in human pharmacokinetic studies with dosages of ranitidine up to 400 mg per day, no interaction occurred, ranitidine had no effect on warfarin clearance or prothrombin time. The possibility of an interaction with warfarin at dosages of ranitidine higher than 400 mg per day has not been investigated.

Carcinogenesis, Mutagenesis, Impairment of Fertility: There was no indication of tumorigenic or

Carcinogenesis, Mutagenesis, Impairment of Fertility: There was no indication of tumorigenic or carcinogenic effects in life-span studies in mice and rats at dosages up to 2,000 mg/kg per day. Ramitidine was not mutagenic in standard bacterial tests (Salmonella, Escherichia coli) for mutagenicity at concentrations up to the maximum recommended for these assays. In a dominant lethal assay, a single oral dose of 1,000 mg/kg to male rats was without effect on the outcome of two matings per week for the next 9 weeks. Pregnancy: Teratogenic Effects: Pregnancy Category B: Reproduction studies have been performed in rats and rabbits at doses up to 160 times the human dose and have revealed no evidence of impaired fertility or harm to the letus due to Zantac. There are, however, no adequate and well-controlled studies in pregnant women. Because animal reproduction studies are not always predictive of human response, this drug should be used during pregnancy only it clearly needed. Nursing Mothers: Zantac is secreted in human milk. Caution should be exercised when Zantac is administered to a nursing mother. Pediatric Use: Satety and effectiveness in children have not been established.

Use in Eldery Patients: Uler healing rates in elderly patients (65-82 years of age) were no different from those in younger age-groups. The incidence rates for adverse events and laboratory abnormalities were also not different from those seen in other age-groups.

annormanies were asso not offerent from tinose seen in other age-groups.

AOVERSE REACTIONS: The following have been reported as events in clinical trials or in the routine management of patients treated with Zantac*. The relationship to Zantac therapy has been unclear in many cases. Headache, sometimes severe, seems to be related to Zantac administration.

Central Nervous System: Rarely, malaise, dizziness, somnolence, insommia, and vertigo. Rare cases of reversible mental confusion, agitation, depression, and hallucinations have been reported, predominantly in severely illi eliderly patients. Rare cases of reversible blurred vision suggestive of a change in accommodation have been reported. Rare reports of reversible involuntary motor disturbances have been received.

Cardiovascular: As with other H₂-blockers, rare reports of arrhythmias such as tachycardia, bradycardia, atrioventricular block, and premature ventricular beats.

Gastrointestinal: Constitution, diarrhea, nausea/vomiting, abdominal discomfort/pain, and rare reports

of pancrealitis.

Hepatic: In normal volunteers, SGPT values were increased to at least twice the pretreatment levels in 6 of 12 subjects receiving 100 mg q.i.d. intravenously for 7 days, and in 4 of 24 subjects receiving 50 mg q.i.d. intravenously for 5 days. There have been occasional reports of hepatitis, hepatocellular or hepatocanalicular or mixed, with or without jaundice. In such circumstances, ranitidine should be immediately discontinued. These events are usually reversible, but in exceedingly rare circumstances death has occurred.

Misculostelate. Percentage of the control o

Musculoskeletal: Rare reports of arthralgias and myalgias.

Hematologic: Blood count changes (leukopenia, granulocytopenia, and thrombocytopenia) have occurred in a few patients. These were usually reversible. Rare cases of agranulocytosis, pancytopenia, sometimes with marrow hypoplasia, and aplastic anemia and exceedingly rare cases of acquired immune hemolytic anemia have been reported.

Endocrine: Controlled studies in animals and man have shown no stimulation of any pituitary hormone by Zanta and no antiandrogenic activity, and cimetidine-induced gynecomastia and impotence in hypersecretory patients have resolved when Zantac has been substituted. However, occasional cases of gynecomastia, impotence, and loss of libido have been reported in male patients receiving Zantac, but the incidence did not differ from that in the general population.

Integrmentary: Rash, including rare cases suggestive of mild erythema multiforme, and, rarely,

Other: Rare cases of hypersensitivity reactions (e.g., bronchospasm, fever, rash, eosinophilia), anaphylaxis, angioneurotic edema, and small increases in serum creatinine.

OVEROUSAGE: There has been limited experience with overdosage. Reported acute ingestions of up to 18 g orally have been associated with transient adverse effects similar to those encountered in normal clinical experience (see AOVERSE REACTIONS). In addition, abnormalities of gait and hypotension When overdosage occurs, the usual measures to remove unabsorbed material from the

gastrointestinal tract, clinical monitoring, and supportive therapy should be employed.

Studies in dogs receiving dosages of Zantac* in excess of 225 mg/kg per day have shown muscular termors, vomiting, and rapid respiration. Single oral doses of 1,000 mg/kg in mice and rats were not lethal. Intravenous LO₅₀ values in mice and rats were 77 and 83 mg/kg, respectively.

DOSAGE AND ADMINISTRATION: (See complete prescribing information in Zantac® product labeling.) Dosage Adjustment for Patients With Impaired Renal Function: On the basis of experience with group of subjects with severely impaired renal function treated with Zantac, the recommended dosage in patients with a creatinine clearance less than 50 mL per minute is 150 mg or 10 mL (2 teaspoonfuls equivalent to 150 mg of ranitidine) every 24 hours. Should the patient's condition require, the frequency of dosing may be increased to every 12 hours or even further with caution. Hemodialysis reduces the level of circulating ranitidine, Ideally, the dosing schedule should be adjusted so that the timing of a scheduled dose coincides with the end of hemodialysis.

March 1994

Glaxo Pharmaceuticals (**)

March 1994 RL-093

Zantac® 150 Tablets/Zantac® 300 Tablets/Zantac® 150 EFFERdose™ Tablets/Zantac® 150 EFFERdose™ Granules: Glaxo Pharmaceuticals, Research Triangle Park, NC 27709
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Zantac® Syrup: Manufactured for Glaxo Pharmaceuticals, Research Triangle Park, NC 27709 by Roxane Laboratories, Inc., Columbus, OH 43216

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Section 3, pg. 4.

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North Carolina Medical Journal

FOR DOCTORS AND THEIR PATIENTS

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Letters to the Editor



Reconsidering HIV Screening in Physicians

To the Editor:

Regrettably, we cannot agree with the premises of "Screening for Human Immunodeficiency Virus in Physicians" by Drs. Levine and Sandler (NC Med J 1994;55:136-40). The authors appear to misunderstand the concept of "exposure-prone procedures" and the recommendations of the Centers for Disease Control about how to prevent the transmission of HIV and hepatitis B from health care workers to patients. Consequently, the conclusions of the paper must be reconsidered.

The CDC proposed the concept of "exposure-prone procedures" in their "Recommendations for Preventing Transmission of Human Immunodeficiency Virus and Hepatitis B Virus to Patients."1 The CDC was concerned about procedures during which a health care worker might be injured, thereby exposing the patient to the health care worker's blood. After considerable effort to gain a consensus from a large group of specialist experts including surgeons, the CDC abandoned its attempt to identify "exposure-prone procedures" either to screen health care workers or to evaluate whether or not those workers posed a risk to patients. The consensus that did emerge was that the risk of transmission was related to a combination of factors including the operative skills, infection control techniques, and clinical condition of the health care worker as well as the type of procedure done.2

Levine and Sandler do not define what they mean by "exposure-prone procedures." They appear to use it to describe subjective perceptions, by a small group of primary care physicians, of the risk that physicians practicing any of a number of medical specialties might be

exposed to the blood of patients. Drs. Levine and Sandler also misconstrue the CDC recommendations that health care workers who engage in "exposure-prone procedures" should know their HIV infection status. The CDC encourages individuals who are at high risk for HIV infection and who perform invasive procedures to be tested voluntarily, but explicitly indicates that testing of health care workers should not be routinely compelled.

Finally, the authors misstate the cost and accuracy of HIV testing. It is standard procedure to repeat the screening ELISA if the initial test is reactive. This must be done under state public health regulations before even preliminary results can be reported. Positive ELISA tests must then be followed by a confirmatory test, such as a Western Blot. The charges of most laboratories include the costs of repeat ELISAs when the initial test is reactive. Thus, the cost figures used in this paper are inflated.

Commonly, the term "false positive" refers to a repeatedly positive ELISA with a negative Western Blot. When the ELISA is repeated, almost all of the initially reactive specimens from uninfected people are negative—no Western Blot is needed, and tested individuals are not needlessly alarmed. It is improper to calculate the positive predictive value based on a single ELISA test. The positive predictive value of two sequentially positive ELISAs is 96.2% in a population with a seroprevalence of 1 in 10,000; 99.4% in a population with a seroprevalence of 1 in 2,000; and virtually 100% when the prevalence reaches 1 in 100.

Lastly, we would point out that in North Carolina, health care workers who know they are infected with HIV or hepatitis B and who perform or assist in surgical or dental procedures or vaginal deliv-

eries must report themselves to the Chief of the Communicable Disease Control Section so that their operative skills, infection control practices, and clinical condition can be evaluated to determine whether or not there is a significant risk of virus transmission to patients.3 The evaluation is done in a way that protects both the confidentiality of the health care worker and the public health. We strongly encourage all health care workers who perform such procedures to be tested for HIV and hepatitis B infection if they have had any exposure to these viruses either through personal behavior or through exposure of non-intact skin to blood.

Rebecca A. Meriwether, MD, MPH
Deputy Chief, Communicable
Disease Control Section
Theresa Klimko, RN, DVM, MPH
Epidemiologist, HIV/STD Branch
Ronald H. Levine, MD, MPH
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NC Department of Environment,
Health and Natural Resources
P.O. Box 27687
Raleigh, NC 27611-7687

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- 1 Centers for Disease Control. Recommendations for preventing transmission of human immunodeficiency virus and hepatitis B virus to patients during exposure-prone procedures. MMWR 1991;40(RR-8):1-9.
- 2 Meeting at CDC to identify exposure-prone procedures.
- 3 19 A North Carolina Administrative Code 15A.0207.

Drs. Levine and Sandler reply:

We appreciate the letter from Drs. Meriwether, Klimko, and Levine. We especially agree with and endorse the last paragraph, and offer these comments regarding the other points they raise.

Their first concern is that we did not define exposure-prone procedures. This

was precisely the rationale for our study. We understood that groups of experts and the CDC could not arrive at a specific definition of exposure-prone procedures. What we did was to allow a working definition to emerge through a consensus process that characterized specialties by the degree to which they were exposureprone. This process produced a very high degree of overall agreement (89% of the specialties could be eategorized without any controversy) and complete unanimity in the category defined as at highest risk. That a panel made up predominantly of primary care specialists could so easily reach a decision about the group of specialties at highest risk was one of the study's key findings.

The second point raised by our correspondents relates to our statement that "Out of this concern arose the CDC recommendation that health professionals who perform HIV exposure-prone procedures know their infection status." Originally this statement read "should know their infection status," because the statement was meant to imply that the CDC encouraged testing, but did not mandate it. We apologize if leaving out the word "should" created any confusion.

Drs. Meriwether, Klimko, and Levine correctly point out that we erred by including a charge for a repeat ELISA which, as they state, is provided without additional cost when an initial ELISA is positive. However, this error does not substantially inflate the cost of testing. The corrected cost of screening 10,000 physicians would be \$450,000 (the cost of the 10,000 initial ELISA tests plus 25 repeated tests) plus \$375 (for five Western Blot tests on those doubly-positive by ELISA). The total, \$450,375 (rather than the \$451,500 as we originally calculated), still represents a hefty cost for identifying five true positives in a population where the prevalence of HIV infection is 1 in 2,000.

We strongly feel that positive HIV test results should only be communicated to individuals who have been confirmed as positive on two ELISA tests and a Western Blot. And the communication of positive results should be done by trained personnel who can give accurate advice

and can give, or refer for, counseling and follow-up.

Finally, we would like to restate the major conclusion of our paper: routinely testing all physicians for HIV would be very expensive and unlikely to be helpful. We think Drs. Meriwether, Klimko, and Levine would agree.

Amy A. Levine, MD Robert S. Sandler, MD, MPH Departments of Nutrition and Medicine University of North Carolina Chapel Hill, NC 27599

Gender Bias in HIV Screening? To the Editor:

The article "Screening for HIV Infection: The Time Has Not Yet Come." (NC Med J 1994;55:212-5) by Drs. Wong and Feussner is another regrettable example of gender (and child) discrimination by otherwise highly capable authors. By choosing "John" for their subject, they have ignored one of the most important test results of recent years and thereby left a false impression regarding the importance of screening. NIH ACTG Protocol 076, which studied the effects of AZT treatment during late pregnancy, intrapartum, and the first six weeks of infancy in the US and France demonstrated that AZT treatment reduced the risk of HIV transmission from mother to infant from 25% to 8%. The only way in which these results can be translated into appropriate public health action is by screening of pregnant women. It is indeed a remarkable achievement to reduce by more than two-thirds the number of infants who will be infected by birth to infected mothers.

If, in addition to (or instead of) "John," the authors had considered "Jane" who was pregnant or at risk of becoming pregnant, their conclusions about the value of screening would be totally different and would warrant rapid and full implementation of screening for pregnant women. This has already been recommended by State Health Director Dr. Ronald Levine in a communication to physicians throughout North Carolina.² Across the nation, 170 of every 100,000 women of child-bearing age test positive for HIV; in North Carolina in 1992 the figure was 225 per 100,000. These statis-

tics ought not be a matter of "passionate prose," as labeled in Dr. Wong and Dr. Feussners' recommendations, but should lead to a logical, fully justified screening approach for a defined segment of our population.

Parenthetically, even without treatment of pregnant mothers, the early identification of infected infants, possible only by prenatal or neonatal screening, permits prophylactic interventions that have been shown clearly to prolong life for children with HIV-related infections. Once again, the authors err in stating that "there is no evidence that early detection of asymptomatic HIV infection prolongs survival." That may be true for adults but not for children since prevention of pneumocystis carinii pneumonia clearly prevents death within the first 18 months of life, thereby greatly prolonging survival.

Drs. Wong and Feussner are identified as "with the Division of General Internal Medicine." I urge them to communicate with their Obstetrical and Pediatric colleagues.

Samuel L. Katz, MD Wilburt C. Davison Professor Department of Pediatrics Box 2925, Duke Univ. Medical Center Durham, NC 27710

References

- 1 Zidovudine for the prevention of HIV transmission from mother to infant. MMWR 1994;43:285-7.
- 2 Levine RH. Memorandum to physicians providing pregnancy care. April 25, 1994.

Drs. Wong and Feussner reply:

We appreciate the interest of Dr. Katz in our article. We offer these comments in reply.

We do not advocate screening for HIV in the general population. A number of "special groups," such as pregnant women, constitute potential candidate populations for screening programs. Dr. Katz is correct; our analysis did not address these groups directly.

Dr. Katz presents one view of the role for HIV screening in pregnancy. The issue of screening all pregnant women remains controversial and requires con-

tinued investigation. Dr. Katz refers to a study, published in JAMA,1 that did demonstrate a significant reduction in the rate of maternal HIV transmission in mothers and newborns treated with zidovudine. It was a small study (364 patients), and one of four important limitations, highlighted by the authors themselves, was their inability to assess the relative contribution of antepartum treatment, intrapartum treatment, or postpartum treatment of the infant to their observed success. All three treatments were given to all study mothers and newborns. In addition, subjects have been followed for only 18 months and thus long-term side effects of treatment are unknown.

Another aspect that must be taken into account when analyzing screening strategies is the prevalence of HIV infection in the population (in the present discussion, pregnant mothers). In 1991 four million total women became mothers (leading to 4,111,000 infants born). Some 7,000 of these pregnant women were infected with HIV, a prevalence of about 0.175%. This prevalence is tiny, even lower than the low-risk population given in our example Table 1.2 If we were to screen the population of pregnant women, we would rightfully expect a very high number of false positive HIV tests. When all mothers who test positive (and their unborn babies) are treated with a potentially toxic drug, the "costs" of a false positive result are significantly increased.

What is striking is that only 1,000-2.000 of the infants born of the 7.000 HIV-infected mothers were themselves infected; the reasons for this inconsistent transmission of the virus is an area ripe for investigation. Even if we assume that zidovudine is good for some of the infants of HIV-infected mothers, 60%-70% will gain little or nothing from the zidovudine treatment but will risk potentially harmful exposure. If we could accurately identify those newborns at risk for having HIV transmitted from their mothers, we too would screen pregnant women and treat with zidovudine at the appropriate time. Unfortunately we do not yet have all the data necessary to support this strategy as a sensible option. Finally, Dr. Katz is quite right to call for better communication between departments. He will be happy to know that at our shared medical center, there are ongoing efforts to institutionalize such interaction and collaboration among the four primary care groups.

Jeffrey G. Wong, MD John R. Feussner, MD Division of General Internal Medicine Box 3375, Duke Univ. Medical Center Durham, NC 27710

References

- 1 Centers for Disease Control and Prevention. Zidovudine for the prevention of HIV transmission from mother to infant. JAMA 1994;271(20):1567-8.
- 2 Wong JG, Feussner JR. Screening for HIV infection: the time has not yet come. NC Med J 1994;55:212-6.

What's in a Name?

To the Editor:

"Poikiloderma of Civatte: Resolution After Treatment With the Pulsed Dye Laser," by Drs. Clark and Jimenez (NC Med J 1994;55:234-5) is a good case report but, search as I may, I could not find out anything about Civatte or what he did from the bibliography in the paper. I took the trouble of looking up his original paper. It's in French (Civatte A. Poikilodermie retriculée pigmentaire du visage et du cou. Ann de Dermat 1923; 4:605-20), but it seems to me that the authors might have given *Journal* readers a little information about who Civatte was and what he originally described.

I see this as an editorial challenge, but I think it's important that we do this sort of thing. There may be a very small number of dermatologists who know what poikiloderma is and who Civatte was, but I doubt if anyone else does.

Eben Alexander, Jr., MD
Professor Emeritus
Department of Neurosurgery
Bowman Gray School of Medicine
Medical Center Boulevard
Winston-Salem, NC 27157-1029

Drs. Clark and Jimenez reply:

We thank Dr. Alexander for his interest in our paper and his thoughtful

comments. Despite our best efforts to search for biographical data on Civatte, we have not found much. We share what little we have found.

Achille Civatte (1877-1956) was born in the south of France, studied Medicine in Paris and, after completion of his thesis, traveled abroad to London, Berlin, Hamburg, and Vienna. During his sojourn, he studied with a number of very prominent dermatologists such as Unna, Neisser, Pick, and F. Pinkus. His real mentor, however, was Jean Darier, with whom Civatte established a long and very productive collaboration at the Hôpital Saint Louis, in Paris.¹

Civatte's main interest was in the emerging field of dermatopathology. He made important contributions to the understanding of many complex diseases such as eczema and its early vesicle, prurigos or parapsoriasis, among others. His description of the new type of poikiloderma that bears his name was only one of his original contributions.

Poikiloderma is a descriptive morphologic term that refers to a combination of skin atrophy, telangiectasia, and pigmentary changes. Poikiloderma-like changes can appear in a variety of diseases including dermatomyositis and cutaneous lymphomas. However, in 1923 Civatte described a specific type of poikiloderma in three patients with a unique, symmetric, pigmented, and atrophic erythroderma, arranged in a reticulated or network pattern.2 Nowadays, poikiloderma of Civatte is considered to be due to chronic sun exposure and is found in individuals with moderate to severe cutaneous signs of photoaging.

Francisco Jimenez, MD
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Robert E. Clark, MD, PhD
Assistant Professor of Medicine
Director, Dermatologic Surgery Unit
Box 3915, Duke Univ. Medical Center
Durham, NC 27710

References

- Civatte J, Darier J. A memoir. Am J Dermatopathol 1979;1:57-60.
- 2 Civatte A. Poikilodermie retriculée pigmentaire du visage et du cou. Ann de Dermat 1923;4:605-20.

Worth Sharing

To the Editor:

Iam always thrilled by "straight talk," as was the case in "Substance Abuse Treatment: Beyond the Minnesota Model" (NC Med J 1994;55:224-6). I will share this article with my colleagues on the Treatment Subcommittee of the State Task Force on Substance Abuse and the Courts, particularly the district attorney and two District Court judges who are members of the committee.

The historical perspective the authors presented will be especially helpful in planning our committee's next steps and evaluating them.

> John R. Dykers, Jr., MD P.O. Box 565 Siler City, NC 27344

More Fault with "No-Fault?" To the Editor:

Dr. David Grove raises some interesting points in his recent editorial "The Paradox of Perfect Practice" (NC Med J 1994;55:243-7). He is right on track when he states that patients need to become more realistic in their expectations of what modern medicine can and cannot do. Unfortunately, sometimes there are less than perfect results.

Dr. Grove would like us to believe a "no-fault" system is the answer to malpractice. His analysis, however, is onesided and simplistic. A no-fault system. in which patients are compensated for adverse outcomes that result from medical care regardless of whether they are the fault of the provider, does have many advantages. It allows more equitable compensation for a greater number of patients, expedites resolution of claims, and presumably lowers the costs associated with defensive medicine. Such a system seems ideal considering that, under our present system, only one claim makes its way into the tort system for every eight cases of injury caused by medical negli-

But there are disadvantages, which Dr. Grove fails to mention. First, there would be no deterrence effect, and physicians might become lax in their practice. Second, fraud would be a real concern—witness what happens with worker's com-

pensation funds in many states. And a nofault system could be tremendously expensive. It would clearly increase dramatically the number of claims. No studies have adequately addressed the issue of cost.

Finally, I would like to express dismay concerning Dr. Grove's criticism of the American Medical Association. He is utterly incorrect in stating that the AMA has not been active in tort reform. This is the furthest thing from the truth. The AMA has testified before Congress, is working to limit award sizes, and has encouraged pilot projects using alternative dispute resolution strategies. Instead of being quick to criticize the AMA, one should investigate its policy. More often than not, Dr. Grove, you'll probably like what you find out!

John J. Whyte, MD, MPH Resident in Internal Medicine Duke Univ. Medical Center Durham, NC 27707

Dr. Grove replies:

I am indebted to Dr. Whyte for his comments on my presentation of a reasonable and principled "no fault" alternative to the madness of our current "system" for dealing with "malpractice."

It is important to understand that my proposition requires a complete reversal of the mind-set underlying the current approach. Rather than viewing every adverse outcome as the result of an all-butcriminal assault on the patient, the nofault approach accepts the fact that outcomes of medical interventions will vary just as patients and their maladies vary. Some outcomes will be bad. It seems reasonable to compensate those who are injured, and to establish a system that uses the experience gained from bad outcomes to reduce the likelihood of subsequent bad outcomes. I argued-I thought rather clearly—that the current faultbased system serves neither of these purposes, in spite of what its advocates claim. A well-designed no-fault system could do both (the operative expression here being "well-designed").

Does Dr. Whyte mean that it is simplistic to assume that a no-fault system will spring into life just because it is a better system? Then, of course, he is right! Opposition by those who benefit from the current system and who understand the implications of no-fault will be deafening. Some of those who do not understand the current system will object anyway and, being far more numerous, will create more noise. But the "understanders" and their money will be the most formidable obstacles as the *Wall Street Journal* pointed out in its editorials for July 7, 1994. Supporters of no-fault have our work cut out for us.

Now that the basic ideas are, I hope, a little more clear, let me turn to Dr. Whyte's specific objections about a nofault system.

- 1. He worries that we will lose the "deterrence effect." What exactly is that? What does it deter? Can we measure what is deterred? What is the cost-benefit of deterrence under the current system? I suppose, as Dr. Whyte implies, physicians could "become more lax in their practice." Does he mean fewer MRI scans for tension headaches, or what? I would point out that the data-gathering that nofault would support is far more likely to answer the question of what "more lax in their practice" means than the fault-based system we presently have.
- 2. He thinks we will have more "fraud." Please! Does he or anyone think that the present system is not rife with fraud, or to euphemize, profitable misrepresentation? At least under no-fault fewer of the stolen dollars would be used to malign physicians!
- 3. Dr Whyte frets about the "cost." Of course this is the first reason to consider tort reform. Whatever good society derives from malpractice litigation it gets at fantastic cost. The question of costs under no-fault goes back to the issue of the "well-designed" system. We could realize huge savings in administrative and legal costs, and even more savings from a uniform definition of preventable bad outcomes. This would discipline the profiteers and help to organize approaches to prevention. Since money would not be dispensed at the whim of juries, some control over total outlay would be possible. Congress or state legislatures might construct a relative value scale and de-

cide what the conversion factor should be! Perhaps there should be global budgets. In either case, outlays would compete, as they ought, with other societal demands for money. Those are thoughts to conjure with...

Dr. Whyte, I regret your dismay. Please allow me to express my dismay at the AMA's use of my dues to sponsor limitations on award sizes, and alternative systems of dispute resolution. To my mind, these are merely attempts to soften the blows inflicted by a bad system rather than to fundamentally reform that system. I don't know whether the AMA believes that its approach really constitutes tort reform, or whether it feels its members would reject a system that would permit meaningful comparisons of the way we all practice medicine, or whether it is enslaved to its own legal department, or whether it thinks that tightening the restrictions on awards would drive medical extortionists to find other victims. In any case, I will continue to argue that the AMA's approach is no more than a variation on the current theme; having figured that out, I don't like it!

Dr. Whyte, no one in his or her right mind would argue that no-fault would be flawless. On the other hand, surely no one in his or her right mind thinks that our present system is anything but insane! Unless you know of a better alternative, I urge you to support no-fault.

David D. Grove, PhD, MD 1511 Westover Terrace, Suite 201 Greensboro, NC 27408

Ripples in the Pond

To the Editor:

I agree with Dr. Bryan of Chapel Hill and Dr. Bluestone of New Hampshire ("A Pebble in the Pond...the Ripples," NC Med J 1994;55:209) that the fabric and texture of the practice of medicine in the United States has been stained by many layers of unwanted interveners. But I disagree with them, and ultimately with Dr. Neelon, that the joy of doctoring, caring, helping, and healing has been taken away from us. The government, the insurance companies, the managed care alliances, the HMOs, the media—with all their dissonant cacophony—may in-

terfere with "management" primacy, but not with patient intimacy. As an example, let me share the story of one of my patients:

A few months ago, a 78-year-old widow was brought to me for deep depression, suicidal thoughts, anergy, anorexia, rapid weight loss, and insomnia. The family was concerned because the woman's previously sunny disposition had turned into a black mood of isolation, irritability, and indifference. Not even her six-year-old grandson could get a hug or smile out of her.

There was a history of "brittle bones," several kidney stones, a right nephrectomy and thyroidectomy in the 1970s, and a cholecystectomy and hysterectomy in the early 1980s. When I saw her she was taking H, blockers, metoclopramide, lovastatin, antacids, a calcium channel blocker, and three antidepressants, not to mention several anxiolytics and hypnotics. She said that she had been sickly and "on the depressed side" all of her life. She was proud that she had fought valiantly to cover up her depression and to act happy for her family's sake. But she was convinced that something "wrong" had happened six months ago. She said that she couldn't "shake it this time," and insisted that she should die.

And here is where partnership with patient helped find the solution to her problem. After the initial interview and consultation with the family, a screening blood chemistry panel showed a high calcium and borderline low phosphorus levels. I suspected that parathyroid malfunction might explain her many past "-ectomics," history of peptic ulcer disease, hypertension, and even the long-standing depression, which she had covered up all her life "for the sake of the family."

After surgical removal of a large parathyroid adenoma, her depression subsided. She began to enjoy life and her family and returned to volunteer work in the hospital. When I saw her for a last visit she was taking no medication and was symptom-free. She hugged me and we said good-bye. I told her to come see me again if she ever needed to. She smiled.

Words cannot describe the joy of this

relationship. Doctors are blessed with these opportunities every day. Granted, not every case of depression clears as dramatically as this one, but even the most chronically ill person offers us an opportunity to care, to heal, to love, and to help. Doctors—and only doctors—have the scientific knowledge to pinpoint and treat disease *and* have the art of healing and the wisdom of loving. Other professions, such as clergy, may offer the art and the wisdom, but not the science.

Dr. Bluestone says that "our health care mess began...when intimacy in the physician-patient relationship became a dispensable item." No one can take anything away from me if I do not allow it. I strongly disagree that AGGCA, PCP, HCFA, and the other tasteless, if not poisonous, ingredients in our present alphabet soup can or will take away our ability to develop intimacy with our patients. We ascribe power to these institutions, but when it comes to regulating the patient-doctor relationship, they do not have omnipotence, only ominous impotence!

I am glad to be a physician. I encouraged my own children to enter the priesthood of Medicine (one is a cardiologist); I hope that my grandchildren will know the joys of caring in the profession of medicine. We should encourage young people to prepare for the rigors of medical education, if they are inclined. The practice of clinical medicine and caring for the sick remains the most honorable of all professions. To this end, Drs. Bryan, Bluestone, and Neelon should not discourage us.

Assad Meymandi, MD Medical Director Cape Fear Neuropsychiatric Associates 3320 Executive Drive, Suite 216 Raleigh, NC 27609

From the Editor:

Well, I have read Dr. Meymandi's letter and I have puzzled over what he is unhappy about. I do not think we disagree much (although I am amazed that a solitary parathyroid adenoma could have caused his patient to live "on the depressed side" for 78 years). True, not HMOs nor HCFAs nor any agency can

prevent intimacy with patients, but they can (and do) make achieving that intimacy, make the entire practice of medicine, more difficult and less fun-often, it seems, out of sheer bureaucratic perversity. When future Dr. Meymandis must get telephonic "permission" before they draw the screening chemistry tests that lead to a serendipitous diagnosis; when those future Meymandis find their requests refused because tests are "not indicated" or were done elsewhere "just five or 10 years ago;" when, once hyperparathyroidism is diagnosed, the patients of those future Meymandis are told which surgeon they must use regardless of preference, then I believe that the Meymandis of the future will stand with Bryan, Bluestone and Neelon.

Fighting the Good Fight *To the Editor:*

Thanks for letting me read "A Pebble in the Pond...the Ripples" (NC Med J 1994;55:209), in which you quoted my article from *JAMA*, "The Bottom Line." I loved it and so did my doting mama.

I was surprised to see the North Carolina Medical Journal still publishing, as such journals are real fossils these days. The New York State Journal of Medicine recently died a hideous death and transformation into a socioeconomic tabloid. I often wonder how other journals, less powerful or well-heeled, keep going. I guess dedication still exists somewhere. Keep up the good fight. Sir William would be proud of you.

Naomi Bluestone, MD, MPH RFD 1, Box 517 Center Barnstead, NH 03225

From the Editor:

We thank Dr. Bluestone for her kind words about the *Journal*. She is certainly correct that state medical journals are an endangered species and that we are fortunate in North Carolina to enjoy the continuing vigorous support of contributors and readers. We do publish a lot of things—all worth reading, I think—that you won't find in any other journal. Those who don't get to read our *Journal* suffer for it. I recently saw a bumper-sticker that read: PROUD TO BE A MAMMAL.

That's about as basic as it gets; maybe we could take as our motto: PROUD TO BE A FOSSIL!

Nazi Medicine Revisited *To the Editor:*

Ienjoyed reading Dr. John Gardella's "Medicine in Nazi Germany: 1933-1945" (NC Med J 1994;55:188-92). I bring to your attention another article on a similar theme from the *North Carolina Medical Journal* of an earlier era: "Historical Basis of Medical Crimes in Nazi Germany" (NC Med J 1968;29:189-201). It was written by Allen Menkin, a medical student whom I tutored back in 1968.

James F. Toole, MD, Professor Neurology and Public Health Sciences Bowman Gray School of Medicine Medical Center Boulevard Winston-Salem, NC 27157-1068

Could History Repeat Itself? To the Editor:

1 have read, for the third time, John Gardella's "Medicine in Nazi Germany: 1933-1945" (NC Med J 1994; 55:188-92). What a chilling and horrifying disclosure Dr. Gardella has shared with us!

It is frightening to think that wellintentioned physicians and scientists, dedicated to alleviating the pain and suffering of humankind, could be committed to a political ideology that dedicated itself to the creation of a "super race." Did those physicians indeed "whistle while they worked," go to bed each night content with the knowledge of a day's work well done, and look forward to the challenges of the coming day? We will never know, but the fact that medical atrocities were committed on such a broad scale lends credence to the likelihood that the physician-perpetrators believed in the righteousness of their acts.

Are we ourselves in danger of comparable breeches of ethics from our own genetic engineering? Will we in the future construct another form of genetic hygiene whose goal is the creation of super-bright, super-healthy human beings—another "super race?" As an involved and committed member of my hospital's ethics committee, I can't help but reflect upon the absolute importance

of examining in minute detail the many ethical issues involved in genetic manipulation, as well as comparable issues of pregnancy termination, for whatever cause, and physician-assisted suicide.

I found it equally chilling to read Dr. Bruce Blackmon's letter in the same issue ("On Pain: May 15, 2080," NC Med J 1994;55:160) depicting what could be de rigueur in the year 2080. My own perspective tells me that Judeo-Christian ethics and morality with their reverence for life will provide the best guide that we in medicine can bring to meeting the needs of the patients we serve.

I am indebted to Dr. Gardella for his eye-opening account of what can happen when reverence for life is overruled by despotic politicians and accepted by a generation of physicians.

Patrick D. Kenan, MD Division of Otolaryngology Box 3805, Duke Univ. Medical Center Durham, NC 27710

Clearing the Air

To the Editor:

I feel compelled to let you know how offensive I found Dr. Tapson's "Climerick" in the June *Journal* (NC Med J 1994; 55:222). This poem is not only juvenile, but it comes across as insensitive, judgmental, and uncompassionate.

Beyond these complaints, the poem sounds moralistic. I'd like to think that the medical profession could relay the hazards of smoking without ridiculing and judging the smoker. Smokers have not chosen to be bad people, nor are they sentenced to eternal damnation. A better understanding, by physicians who have not been afflicted with addiction problems, would benefit the community.

G. Alex Norwood 450 N. Broad St., #108 Winston-Salem, NC 27101

From the Editor:

We're sorry Mr. Norwood found the "Climerick" insensitive and judgmental. But doctors do have to make judgments about what's good and bad for patients—that's why patients come to them. And it's hard to be too sensitive when patients are dying to (and from) smoke.

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Childhood Injury in Rowan County

M. Sean Rogers, MD

Editor's note: Dr. Rogers is a graduate of the Bowman Gray School of Medicine in Winston-Salem. In May 1993, he spent a Community Medicine rotation with Drs. James C. Womble and John F. Barr in Rowan County. During the rotation he became interested in childhood injury and studied that public health problem for his community medicine project. This paper, the result of that project, reviews the prevalence and impact of unintentional childhood injury in the United States, in North Carolina, and in Rowan County. This is the sort of work the North Carolina Medical Journal particularly likes to publish: work by, for, and about North Carolina medicine.

My particular clinical interest is pediatric radiation oncology. For me, Dr. Rogers' paper was a real wake-up call. I usually worry about the treatment of children with acute leukemia, medulloblastoma, Wilms' tumor, and neuroblastoma. The fact of the matter is that there will be only 7,000 cases of childhood cancer in the US this year. Dr. Rogers' paper reminded me that childhood accidental injuries dwarf cancer as a public health problem. In addressing himself to the problem of accidental injuries, Dr. Rogers has chosen a worthy and important topic. In addition, his paper demonstrates the special niche filled by state medical journals and not met by other medical publications. And we are always particularly pleased when we can help a young physician publish one of his first papers. We wish Dr. Rogers every success in his residency in San Diego.

-Edward C. Halperin, MD

The term "injury" includes "any unintentional or intentional damage to the body resulting from acute exposure to thermal, mechanical, electrical, or chemical energy or from the absence of such essentials as heat or oxygen." It also includes homicide and suicide as well as unintentional events.

Injuries have enormous public health significance. In 1900, unintentional injuries were the 10th leading cause of death in America; today they are the fourth leading cause. Only heart disease, stroke, and cancer account for more deaths annually.² On an average day in the US, more than 170,000 men, women, or children are injured seriously enough to require medical care; each day some 400 Ameri-

Dr. Rogers is a resident in internal medicine at the University of California at San Diego Medical Center, San Diego, CA.

cans die as a result of injury. Injury is the single greatest killer of Americans between the ages of one and 44. Every year, non-fatal injuries cause about one-third of the American population to seek medical attention or to miss work because they are unable to fully perform their duties. The overall result is an enormous cost to society.

The Socioeconomic Effects of Injury

It is difficult to estimate the economic impact of long-term disability and virtually impossible to place a value on the loss of a loved one. However, such things as direct health care costs and years of potential life lost before the age of 65 (YPLL-65) can be measured with some degree of accuracy. These estimates are

useful as we attempt to grasp the extent of the accidental injury problem. For instance, the annual cost for all injuries in the US in 1987 was \$133.2 billion. Calculation of YPLL-65 emphasizes the public health impact of injuries by taking into account both the number of persons who have died and the number of productive years lost. Unintentional injuries are responsible for the loss of more years of potential life than heart disease, stroke, and cancer combined. The lost productivity is independent of age, sex, or race.

The direct and immediate costs of care for non-fatal injuries amounted to \$5.1 billion in 1987. Falls, particularly in children under age 14, accounted for the largest percentage of these costs; motor vehicle accidents (MVA) accounted for the major portion of costs in the 15-19 age group.⁵ In 1986 22,000 injury-related childhood fatalities were recorded; they

resulted in lost productivity worth an estimated \$8.3 billion (1985 dollars).10 In 1985, the 57 million people who were injured in the US incurred estimated lifetime costs (direct costs of medical treatment and rehabilitation as well as indirect costs due to disability and premature death) of about \$158 billion. The categories of unintentional injury producing the greatest lifetime economic costs were: MVA (\$48.7 billion), falls (\$37.3 billion), poisonings (\$8.5 billion), and fires and burns (\$3.8 billion).3 Children under age 15 accounted for 8.7% or \$13.8 billion of the total. Injuries to those aged 0-19 forfeited as many years of potential life as congenital anomalies and prematurity combined.10

Childhood Injury

Injuries disproportionately affect children and are the most frequent cause of death in childhood. But deaths are only the tip of the injury iceberg. For each death that occurs, there are 1,120 emergency room visits and 42 hospitalizations. 5 Non-fatal injuries are at least 1,300 times more common than fatal injuries, and each year approximately 20% of all children sustain an injury that requires medical attention. Twenty-nine percent of deaths in persons under 25 years of age are due to unintentional injuries (and 11% more are caused by intentional injuries).6 In the US, the leading causes of injury-related deaths of those under age 20 are (in descending order): motor vehicle accidents (MVA), homicide, suicide, drowning, fire and burns, unintentional firearm injuries, poisoning, and falls.

Children are at risk for different injuries depending on a number of factors including age, environment, and cognitive and motor skills (Table 1). As would be expected, infants who explore their home environment are subject to very different risks and subsequent injuries than adolescents who spend a large amount of time outside the home.

Childhood Injury in Rowan County, NC

Approximately 6.74 million people live in North Carolina and 112,000 live in Rowan County. 11 Cleveland, North Carolina, population 708, is located approximately 15 miles west of Salisbury in Rowan County in the southern Piedmont. 12 The residents of Cleveland have depended on dairy farming, beef ranching, and produce farming for their livelihoods, but in recent years industries such as the Grinnel Fire Protection Company, the Freightliner Truck Company, and the Hoechst-Celanese Fiber Company have become major employers. 12

In 1988, there were 4,601 injury-related deaths in North Carolina, 70% of which were classified as unintentional. MVA accounted for 35% of that total. MVA in North Carolina caused 2.75 deaths per 100 million vehicle miles traveled (compared to 2.4 nationally). Alcohol was a major contributing factor in MVA with 56% of drivers in single vehicle crashes, 19% of drivers of multiple

vehicle crashes, and 41% of pedestrian victims being legally intoxicated. In 1988, a total of 140,842 years of potential life were lost by North Carolinians who died in MVA. The resultant economic impact was estimated at \$1.5 billion. 1.13-16

Consistent with the rest of the nation, the top four causes of death in Rowan County are heart disease, stroke, cancer. and unintentional injury.17 The percentage of all deaths in Rowan County due to injuries is slightly higher (6.8%) than that in the US in general (5.7%), but an identical percentage is due to unintentional injuries (4.5%). However, the similarity does not hold for all age groups. In fact, in Rowan County a significantly higher percentage of deaths are ascribed to unintentional injuries in those aged five to 14 and 15 to 24 than in the same age groups in the US or North Carolina in general (Fig. 1). Most of these deaths are due to MVA (Fig. 2). From 1987-1991, the death rate for MVA in Rowan County was 24.7/ 100,000 as compared to 23.0/100,000 in North Carolina¹³ and 18.8/100,000 nationally.7

One way to measure injury trends is to count emergency room visits for specific injuries across age groups. North Carolina ambulance call report forms request that paramedics responding to a call encode the "apparent cause of the incident." There are 24 possible causes from which to choose and seven specifically refer to aircraft, household, industrial, motor vehicle, railroad, sporting event, and water/boating accidents. Other categories of interest include falls and fire-related injuries. 19 1 asked Beth

Connell, supervisor of the office of Emergency Medical Services (EMS) in Rowan County, to provide reports from the years 1989-1992 on these nine causes of injury.

Figure 2 depicts my analysis of ambulance call reports from 1989-1992 (remember that these data are subject to reporting bias). Interestingly, the top three causes of unintentional injury—MVA, falls, and household accidents—were the same for all four age groups (under 2, 3-5, 6-12, 13-18). However, the percentage due to MVA increased with age

Table 1. Leading causes of injury-related deaths in US children, 1991, according to Glotzer and Weitzman.⁶

1.	Age <1 Homicide	Age 1 - 4 Drowning	Age 5 - 9 Pedestrian	Age 10 - 14 Motor vehicle*			
2.	Motor vehicle*	House fire	Motor vehicle*	Drowning			
3.	Suffocation	Motor vehicle*	Drowning	Pedestrian			
4.	House fire	Pedestrian	House fire	Homicide			
5.	Aspiration	Homicide	Homicide	Bicycle			
* occupants only							

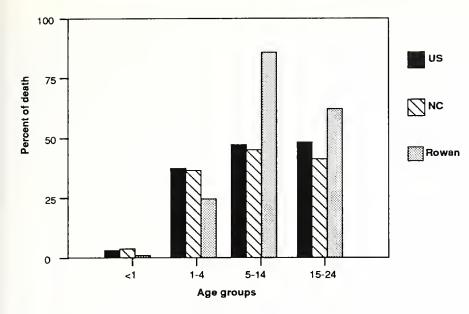


Fig 1: Percentages of total deaths in each age group due to unintentional injury in the US,7 NC, and Rowan County.13

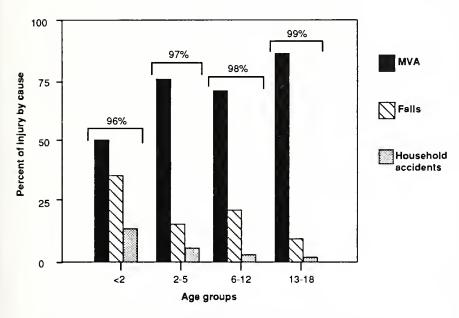


Fig 2: Percentages of age-specific deaths due to MVA, falls, and household accidents reported by Rowan County Emergency Medical Services from 1989-1992.

and that due to falls and household accidents decreased. These three causes accounted for more than 96% of all unintentional injuries in each age group. In Rowan County unintentional injury was the cause of 32% of all EMS calls in the 0-18 age group; 77% of those injuries were a direct result of motor vehicle accidents.

Preventing Injury

In 1986, Congress passed the Injury Prevention Act to promote injury research and coordination between government, public, and private agencies involved in injury prevention. The Centers for Disease Control has taken a leading role in

this effort and has budgeted approximately \$21 million for injury control research and community intervention demonstration projects.¹⁰

An improved understanding of the epidemiology of injuries has identified the interplay of person, agent, environment, and time and the important roles these factors play in determining the nature and severity of injuries. We should not consider injuries to be "accidents," which implies random events. Rather, we should view injuries as the result of a number of controllable variables. In addition, we should remember that injuries are separate from the events that lead up to them and that injuries do not necessarily have to follow from these events.

The concept of the "accident-prone" child is embedded in popular culture but requires revision. Well-known risk factors for childhood injury include male sex, overactivity, low socioeconomic status, and a high level of aggression. Even so, predicting individual injury based on these risk factors is highly inaccurate.²⁰ The correlation between past and future injuries is low and focusing on "accident proneness" may divert attention from characteristics of the child's behavior or the environment that can be successfully altered.

The elimination of all childhood injuries may seem at first glance to be a noble goal, but minor injuries may be educational and help children learn about dangers in their environment. Minor accidents often occur when children are demonstrating age-appropriate behavior. They help children comprehend their physical limitations and thus may aid in their development.⁶

There are three major approaches to lowering rates of unintentional injuries:

- Educate and support children and their parents to change their risk-taking behavior.
- Coerce children and their parents through legislation or regulation such as auto-restraint laws.
- Decrease the risks inherent in the actions of children and their parents through technical and product innovations that make those actions safer and require only minimal effort (such as

automobile airbags, infant seats, and smoke alarms).²⁰

The Role of Education

Education is usually the least expensive and product innovation the most expensive option in teaching injury prevention. Conversely, education has consistently had the least and product innovation the highest rate of success. The relative failure of education may reflect the imperfection of current programs rather than an absolute inability of education to change behavior. Injury prevention needs to be taught from the earliest ages and carried consistently throughout childhood into adulthood. Adults need to be taught not only how to prevent injuries to themselves and their children but also how to teach injury prevention. Adults need information regarding childhood development so that they do not expect too much too soon and thus put their child at increased risk. Educational programs need to be implemented in an effective manner that includes correct timing, one-on-one approaches and the provision of easy-tounderstand information. Parents are particularly receptive to learning about injury prevention during pregnancy and the perinatal period. This is a logical time to begin an educational program that could be extended as the child grows and matures.

Even the best educational programs will undoubtedly fail unless the public is convinced that they are necessary. Former Surgeon General C. Everett Koop said "If a disease were killing our children in the proportions that injuries are, people would be outraged and demand that this killer be stopped." In my opinion, this outrage has not occurred because the public does not perceive injury as a legitimate health problem such as polio, measles, leukemia, muscular dystrophy, etc. This attitude can and should be changed.

Community Intervention

The ideal community intervention must meet several criteria. It must: 1) target a

problem that occurs commonly in the community, 2) be effective and widely available, 3) be inexpensive, 4) be easy to implement, and 5) be easy to understand. These criteria are analogous to those required for an ideal medical screening test and, indeed, an intervention program can be thought of in these terms.

The Rowan-Salisbury school system provides an example of an effective community intervention program. The system is very active in injury prevention and health promotion. It publishes the *K-8 Health Education Teacher Handbook* to provide specific goals that children should be able to reach as they progress through sequential levels of education. For example, the *Handbook* suggests that, upon completion of kindergarten, a child should know how to: 1) prevent the spread of germs, 2) use automobile seat belts, 3)

"Adults need to be taught not only how to *prevent* injuries to themselves and their children but also how to teach injury prevention."

describe meanings of traffic signs and signals, 4) respond to warning signs, sounds, and labels, 5) demonstrate the "stop, drop, and roll" response to burning clothing, 6) get help in an emergency, and 7) identify items that can cause burns. The children's teachers address these goals throughout the school year in a variety of settings. Similar guidelines are provided at other grade levels.

The school system has also funded and implemented the *Parents As Teachers* program that provides every new mother in the county with a packet that includes emergency telephone numbers, an immunization record form, a developmental calendar for the child's first year of life, a developmental chart, an infant activity sheet, and information on home visitation. Periodic home visits by a member of the school system provide the opportunity to evaluate each home indi-

vidually regarding safety issues.

An additional resource that could be easily distributed by doctors or community organizations is The Injury Prevention Program (TIPP) published by the American Academy of Pediatrics. TIPP consists of single sheets of easy-to-read, age-specific information on accident prevention as well as safety-related games and activities for older children. These sheets are available for different age groups through adolescence. TIPP is copyrighted and cannot be copied but the sheets are available at \$7.50/100. Alternatively, doctors or community organizations can publish and distribute their own injury prevention information.

Other resources include the National Safe Kids Campaign product catalog and the catalog of publications produced by the American Academy of Pediatrics. Both offer numerous injury prevention programs including posters and handouts, videotapes, and school-based and community-based programs (see Appendix, at right, for a list of resources). As always, the key to successful implementation is the dissemination of easy-to-understand information to a large audience.

Summary

Unintentional childhood injury is a public health problem of enormous magnitude. Its relative impact is actually increasing as deaths due to disease continue to decline. Despite this, I am heartened by the fact that this field is receiving more attention, more funding, and is the subject of more research each year. National organizations are providing leadership for state and county health departments which, in turn, provide information and resources at the local level. My studies in Rowan County confirm these effects.

Ultimately we want to use the available data to formulate effective interventions that will greatly reduce death and disability. The implementation of such interventions is imperative—the most precious resource of any community is its children.

Appendix: Injury Prevention Resources

National Center for Injury Prevention and Control, 404/488-4646

National Center for Education in Maternal and Child Health, 703/821-8955

American Academy of Pediatrics, 800/433-9016

National Safe Kids Campaign (sponsored by the National Coalition to Prevent Childhood Injury), 202/939-4993

North Carolina State Center for Health Statistics, 919/733-4728

North Carolina Office of Emergency Medical Services, 919/733-2285

Rowan County Office of Emergency Medical Services, 704/638-0911

Rowan County Health Department, 704/633-0411

Rowan-Salisbury School System, Health Director, 704/636-7500

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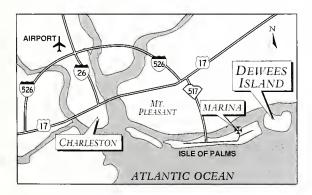
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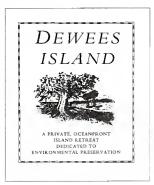
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Childhood Fatality in Buncombe County

Andrea R. Gravatt, MD, FAAP, and Effie Constantinou

In North Carolina, the Pediatric Medical Society's section on Child Abuse and Neglect and the state Child Fatality Task Force have made recommendations regarding the evaluation of specific causes of child fatality on a county level. These recommendations led to Governor Martin's executive order of May 1991.1 Since that time, child protection teams have been reviewing, on county-wide bases, fatalities that result from child abuse. North Carolina counties will be able to use such information to implement the recommendations of child abuse experts about how to improve the way our health care system responds to the deaths of children, especially from accidents and abuse.2,3

In Buncombe County, we have used our review of all childhood deaths in a continued effort to: 1) understand why children die in Buncombe County; 2) identify trends in child death statistics; 3) develop child death prevention programs; and 4) identify problems with the review system in order to improve data retrieval and accuracy.

Dr. Gravatt is with Asheville Pediatric Associates, PA, 77 McDowell St., Asheville 28801, and the Western North Carolina Regional Child Abuse Center, P.O. Box 5861, Asheville 28813. Ms. Constantinou is a volunteer with the Western NC Regional Child Abuse Center and is a student at UNC-Chapel Hill.

Procedures

A child protection team, made up entirely of health care professionals, reviewed all deaths of children that occurred in Buncombe County between June 1991 and May 1994. There were 179 children (ranging in age from live birth after 24 weeks of gestation through 18 years) eligible for inclusion in the study group. Data pertinent to each case were abstracted from death certificates, autopsy reports, medical records, emergency room reports, law enforcement records, and Department of Motor Vehicles records. Cases were reviewed only to obtain data for analysis. not to critique medical treatment or detect criminal action; confidentiality was preserved.

Classification of Child Death

Data were entered on a standard intake form adapted from that used in Franklin County. This allowed us to classify deaths as due to:

- 1) *Prematurity*. Deaths of children born alive more than 24 weeks but less than 36 weeks of gestation.
- 2) Sudden infant death syndrome (SIDS). Deaths specified as such by death certificate report with no indicators by the autopsy report or medical record to suggest otherwise.

- 3) Congenital defect. Deaths directly caused by a congenital defect regardless of the child's age (which was quite variable). Deaths due to malignancy were included in this group if symptoms were present or the diagnosis made by one year of age.
- 4) Homicide.
- 5) Suicide.
- 6) Motor vehicle accident (MVA). Deaths directly resulting from a motor vehicle accident, including victims who were pedestrians, passengers, on bicycles, etc. Use of alcohol by driver or victim, and use of seat belts or car seat by the child was recorded if known.
- 7) Accidents.
- 8) Natural causes. Deaths due to medical causes such as infections, malignancy in children older than 12 months of age, or other causes not categorized above.

Causes of Child Fatality

As Table 1 shows, the leading causes of childhood death were prematurity (accounting for 26% of cases), and congenital defects (25%). Although we did not perform an in-depth review of these cases, we did not find that lack of prenatal care contributed significantly to prematurity. Whether the use of street drugs such as cocaine, marijuana, or alcohol played a role could not be determined since routine perinatal screening is not done at

Memorial Mission Hospital in Asheville.

The percentage of child deaths attributed to congenital defects is consistent with the national rate of 20%. We always classified deaths as due to congenital defects (if present) rather than prematurity even when the birth occurred before term. Cardiac anomalies were the most common cause of death due to congenital defects and central nervous system anomalies were second (Table 1).

MVAs represent the single preventable cause of childhood deaths. They were the third leading cause of childhood fatality and accounted for 31 (17%) deaths, primarily of children aged 15 through 18. Failure to use seat belts or restraints was noted in 12 of the 17 cases where data were given, and the use of alcohol was noted in three of 13 cases where data were given. Of note, two deaths were of newborns who were delivered as a direct result of maternal involvement in a motor vehicle accident.

Accidents other than MVA accounted for 13% of childhood deaths. The leading cause of death was head trauma, followed by drowning.

SIDS accounted for 3% of the child fatalities in our study population. The value of a careful review such as ours is reflected in our correction of one case, originally recorded as SIDS on the death certificate but found at autopsy to have died from a congenital defect.

Homicide accounted for 4% of child deaths in Buncombe County. Homicide is the only major cause of death in children that has increased in the past 30 years; it now accounts for about 5% of all deaths in children in the US.⁷ Despite these worrisome statistics, child homicide continues to be misdiagnosed or incorrectly reported—as S1DS, death by natural causes, or unintentional injury.

Figure 1 shows the relative stability in the numbers of childhood deaths ascribed to each cause in 1992 and 1993. We collected data from May through December 1991, and January through May 1994, but these are not shown in the figure because of the seasonal variation in death rates, especially of drowning, accidents, and fire. No S1DS deaths were recorded in 1993.

In our previous study,8 we reviewed deaths of 141 children in Buncombe County from January 1989 through May 1991. Deaths due to various causes changed relatively little between the earlier study and the present one. MVAs and other accidents accounted for 27% of the deaths in the earlier study, compared to 30% in the present study, and prematurity accounted for 23% of fatalities then compared to 26% now. Most interesting was the change in deaths ascribed to SIDS. In our earlier study, SIDS accounted for 8%, but in the present study, only 3% of deaths. Homicide was unchanged at 4%; suicide accounted for 2% earlier and 3% now.

Conclusions and Recommendations

Potentially preventable causes (MVA, other accidents, S1DS, homicide, and suicide) account for 40% percent of child deaths in Buncombe County.

The significant number of deaths attributed to congenital defects suggests that looking at common variables (location of residence, medications, environmental issues, etc.) may help identify previously unrecognized or remediable causes. The information provided by autopsy and genetic studies certainly contributes to a greater understanding of pediatric mortality.

Table 1. Causes of death in Buncombe County children 24 weeks gestation through 18 years of age, June 1991-May 1994.

Children listed with chromosomal abnormalities may have had other anomalies as well.

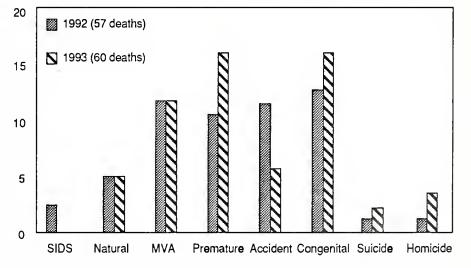


Fig 1: Breakdown of 117 deaths of Buncombe County children 24 weeks gestation through 18 years of age, 1992-1993.

There were no operating fire alarms or smoke detectors present in the any of the three cases where fire caused death. Increasing the public's awareness of fire prevention and the importance of smoke alarms should be a public health priority.

As we noted in our previous study,8 the use of alcohol and lack of proper seat belt use continue to be factors in childhood MVA death, especially of adolescents. The ability to track such data is hampered by inconsistent reporting (we found data on one or both items missing in about half of the reported pediatric MVA deaths), but the relevant information can be very helpful in setting policy. For example, we know that police enforcement of seat belt use does have a major effect on usage rates9 but educational programs, by themselves, have little effect.10 Studies elsewhere indicate that 31% of 16- to 19-year-old drivers involved in fatal MVAs had been drinking at the time of the crash and 20% were

legally intoxicated.¹¹ Interestingly, 20% of the mileage driven by teenagers occurs between 9 p.m. and 6 a.m. but more than 50% of their fatalities occur during that period.¹² The implementation of curfew hours for 16-year-old drivers reduced fatality by 69% in Pennsylvania and 62% in New York.¹³ Careful analysis of MVAs in Buncombe County might lead to specific recommendations in this regard.

We found no SIDS deaths in 1993, and only five in the 36 months of the present study compared to eight in 30 months in our previous study. The cause of this apparent change is unclear. The American Academy of Pediatrics recommends that infants sleep on their backs, ¹⁴ but it is too soon to state whether this advice has had an impact. As our community becomes more educated about child fatality, as death scene analysis improves and autopsy procedures and postmortem medical studies become more sophisticated, deaths once attributed to SIDS

might be reclassified (as we found in one case in the present study).

The data system for Buncombe County has been improved to now allow retrieval of all childhood deaths, whether in the hospital or in the community. During our study the system was changed to identify one office that retrieves the names of all subjects regardless of where they died. This gives us, for the first time, an accurate, comprehensive list of child deaths. Nevertheless, weak points persist. Children with unusual medical illnesses often must seek care outside Asheville. The resultant transfer to a tertiary medical center skews the data. For example, children with severe burn injuries are typically sent to a burn center for management. Should the child die, that death may not be easily identified by our current procedures, leading to a false sense of security about the etiology of some child deaths.

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Cardiovascular Disease Risk Factors in North Carolina Correctional Employees

Barbara E. Ainsworth, PhD, MPH, Joanne M. Garrett, PhD, Laureen M. Lopez, RD, PhD, Paige E. Dosser, and G. Alan Stull, EdD

Employees of correctional institutions work in a high-stress environment, under conditions that place them at risk for cardiovascular disease (CVD). Recent data reported by the North Carolina Department of Correction indicate that white male correctional officers have higher rates of CVD-related mortality and disability than members of otherwise similar populations in the state. These findings become especially important when we realize that the North Carolina Department of Correction employs more than 12,000 individuals who are at risk of premature death or disability.

Correctional employees work in highly structured environments, at relatively low salaries, in highly stressful jobs that give little opportunity for physical activity or release of tension. They are likely to smoke cigarettes and to snack on high-fat food in order to stay alert at work and to break the monotony of overseeing prisoners.² In general, correctional officers are at high risk of stress-related behaviors such as alcohol dependency, violence, irregular sleeping and eating habits, and lack of exercise.^{3,4} These behaviors are associated with hypertension,⁵

obesity, 6 sedentary lifestyle, 7 and a highfat diet—all of which promote the development of CVD.8

The prevalence of unhealthy behaviors among correctional officers in North Carolina and the relation of those behaviors to overall CVD risk profile is not known. Moreover, there is no information on whether employees working at maximum security prisons (perceived as the most stressful working environments9) are at a greater risk for CVD than employees working in medium- or minimumsecurity prisons. Therefore, we undertook a cross-sectional pilot study to answer two basic questions: 1) Are CVD risk factors in employees of the North Carolina Department of Correction higher than those reported for the general population of North Carolina? 2) Are CVD risk factors higher in employees of maximum-security facilities than of mediumor minimum-security prisons?

Methods

The North Carolina Center for Health Promotion and Disease Prevention and the North Carolina Department of Correction Office of Staff Development and Training collaborated to determine the feasibility of system-wide CVD risk factor screening in the North Carolina Department of Correction. We collected data on the prevalence of CVD risk factors from employees of 14 correctional facilities in North Carolina (one maximum-, seven medium-, and six minimum-security prisons). Prisons were selected to provide: 1) representative geographic distribution, 2) equal proportions of men's and women's facilities, and 3) a sample of minimum-, medium-, and maximumsecurity prisons.

We conducted a series of one-day visits ("health fairs") to the prison facilities. All employees at the 14 prison facilities were invited to participate, but only employees of the first (6 a.m. to 2 p.m.) and second work shifts (2 p.m. to 10 p.m.) were able to participate except at the one maximum-security prison where employees of all three work shifts participated. Employees were notified of the health fairs through fliers posted at each facility. Volunteers who reported to the screening area signed a study participation consent

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form, completed a CVD risk factor survey, and had blood pressure, blood cholesterol, and anthropometric measurements made. Assistance was provided to subjects who had difficulty reading or understanding the survey. The average visit lasted about one hour per subject. Most subjects participated during work shifts, but some came either immediately before or after their work shift or on their day off. The study was approved by the Academic Affairs Institutional Review Board of the University of North Carolina and the North Carolina Department of Correction Administration.

CVD Survey

The CVD risk factor survey used existing instruments of acceptable validity and reliability and took about 40 minutes to complete. Demographic and CVD risk factors were assessed using questions taken from the Behavioral Risk Factor Surveillance System (BRFSS) survey. 10,11 They provided data on age, gender, family history of CVD, personal history of CVD and other chronic diseases, smoking behavior, knowledge of cholesterol levels, and consumption of alcohol. Physical activity during leisure time was measured with the Lipid Research Clinics questionnaire using the 2-point score. 12

Physical Measurements

Physical and anthropometric measurements were made by trained personnel and took approximately 20 minutes to complete.

Blood pressure. Sitting systolic and diastolic blood pressures were measured with a mercury sphygmomanometer¹³ after subjects sat quietly for five minutes (during which time they were asked about current use of blood pressure medications). Blood pressure was measured three times at one-minute intervals; the mean of the second and third measures was taken for data analysis.

Total cholesterol. Total blood cholesterol was measured using the Reflotron (Boehringer-Manheim) fingerstick method according to a standard protocol developed by the University of North Carolina. ¹⁴Reflotron analyzers were calibrated using cholesterol standards obtained from the manufacturer and the Centers for Disease Control.

Anthropometrics. Height (in stocking feet) was measured to the nearest 0.5 cm using a wall-mounted tape measure. Weight (with belt and belt equipment removed) was measured to the nearest kilogram using a Detecto balance scale. Waist circumference was measured in duplicate (under the subject's shirt) to the nearest 0.5 cm with a cloth tape at the level of the subject's natural waist. Hip circumference was measured in duplicate (over the subject's pants with pockets empty) to the nearest 0.5 cm with a cloth tape at the widest protrusion of the buttocks. Mean values of the waist and hip circumference measurements were used for data analysis. Body mass index (BMI) was calculated according to the formula: BMI = body weight (kg)/height (m^2) . The waist-to-hip ratio (WHR) was calculated as: waist circumference/hip circumference.

CVD risk factor classification. Usingeriteria of the North Carolina BRFSS,15 subjects were classified as hypertensive if they had ever been told by a health care provider that they had high blood pressure, if they were currently taking antihypertensive medication, or if their measured diastolic blood pressure was greater than 90 mmHg. Subjects were considered hypercholesterolemic if their self-reported blood cholesterol level was >200 mg/dL or if their measured level was >200 mg/dL. Subjects were classified as overweight if the BMI was >27.3 for women or >27.8 for men.15 Subjects were considered as currently smoking if they had smoked at least 100 cigarettes in their lifetime and were presently smoking one or more cigarettes per day; they were classified as physically inactive if they did not engage in strenuous exercise or labor at least three times per week.

Data analysis. We calculated means and standard deviations of the mean using routine methods. We calculated the prevalences of CVD risk factors by dividing the observed number of subjects

with a given risk factor by the total number of subjects in the study. We compared prevalence of those factors in correctional employees to those reported by the 1990 North Carolina BRFSS survey (a random sample telephone interview survey conducted by the CDC^{10,11}). We used the general Cochran-Mantel-Haenszel chi-square statistic¹⁶ to calculate the probability that observed differences had arisen by chance; a probability of less than .05 was considered significant.

In order to identify differences in CVD risk factors among employees of minimum-, medium-, and maximum-security prisons we used analysis of covariance (for continuous responses) and logistic regression (for dichotomous responses). The tested risk factors were: systolic and diastolic blood pressures, total blood cholesterol concentration, body mass index, waist-to-hip ratio, selfreported physical activity, and smoking status. We adjusted for the presence of potential confounders of any relationship between employment in prisons and CVD risk factors. Those confounders were: age (over or under 40 years); gender (male, female); education level (less than high school or high school and above); race (white, black, other); and number of alcoholic drinks consumed per week (one or less, two to seven, more than seven).

Results

Six hundred and twenty-one employees signed consent forms, but 30 provided incomplete data and were omitted from analysis. There were no differences in self-reported or measured CVD risk factors of subjects with and without complete data. The analyzed sample consisted of the 591 subjects (424 men and 167 women) on whom complete data were available. The study subjects had age, gender, and race distributions representative of the 12,544 employees of the North Carolina Department of Correction (mean age was 38.7 years, 75.6% were male, 72% were white, 26% were black, 2% were of other races1). The 14 correctional facilities surveyed included 10 men's and four women's prisons, two

to three from each of six geographic areas. From 8% to 50% of employees at each facility participated in our study. The average age of participants differed relatively little among the facilities.

Table 1 compares the prevalences of CVD risk factors in Department of Correction prison employees with those found in the North Carolina BRFSS survey. The BRFSS population was slightly older, better educated, and had more white participants and women compared to the correctional employees. The prevalences of hypertension and high serum cholesterol were not different in the two groups. However, smaller percentages of correctional employees had been told more than once that they had hypertension or were

taking antihypertensive medications. More correctional employees were physically active, but more were overweight and current smokers than reported in the North Carolina BRFSS.

Table 2, at right, compares differences in adjusted means (or proportions) of each CVD risk factor according to level of prison security. Mean blood pressures (both systolic and diastolic) were significantly higher in maximum-security employees than in minimum- and medium-security employees. Waist-to-hip ratio became higher as the level of prison security became higher. On the other hand, cholesterol concentration was significantly higher in minimum-security employees than in those employed in

medium- and maximum-security facilities. There were no differences in smoking status, physical activity, or body mass index among employees at the three security levels.

Discussion

Correctional employees had more hypertension, smoked more cigarettes, and tended to be more overweight than the general population of North Carolina. Furthermore, the prevalences of CVD risk factors differed according to the security level of the prisons.

It was disconcerting to find that only 41% of correctional employees who had

Table 1. Prevalence of risk factors for cardiovascular disease in employees of the North Carolina Department of Correction compared to the 1990 North Carolina Behavioral Risk Factor Surveillance System Survey population.

	Correctional	BRFSS respondents	
	employees (n = 591)	(n = 2,130)	p-value
Age			0.0001
<34 years	38.2%	37.8%	
35-54 years	53.0%	34.0%	
>54 years	8.8%	27.8%	
Race			0.0001
White	70.4%	76.5%	
Black	24.4%	19.8%	
Other	1.2%	3.7%	
High school education or less	45.2%	59.8%	0.008
Men	71.7%	47.6%	0.001
Hypertensive			
Told by health care provider	21.8%	22.4%	0.77
Told more than once or taking medication	9.0%	18.0%	0.0001
Told by health care provider, taking medicati and/or measured DBP >90mmHg	on, 13.5%	•	
Self-reported cholesterol (>200 mg/dL)	48.9%	45.0% [†]	0.094
Measured cholesterol (>200 mg/dL)	46.0%		
Currently smoking	32.3%	28.0%	0.04
Physically inactive	48.4%	60.5%	0.0001
Overweight (women's BMI >27.3; men's, >27.	8) 52.1%	24.2%	0.0001

Not measured

[†] Data from the 139 North Carolina correctional officers and 613 North Carolina BRFSS respondents who knew their cholesterol level

Table 2. Mean values, standard errors, and proportions of CVD risk factors* in correctional employees by prison security level.

Prison	security	level
--------	----------	-------

	minimum (n = 163)	medium (n = 337)	maximum (n = 91)	p-value [†]
Systolic BP (mmHg)	124.0±1.1	124.9±0.7	129.9±1.4	0.0027
Diastolic BP (mmHg)	78.8±0.8	78.3±0.5	83.0±1.1	0.0005
Cholesterol (mg/dL)	210.7±3.4	192.7±2.4	196.4±4.6	0.0001
Currently smoking	30.1%	32.8%	29.6%	0.76
Physically inactive	49.3%	48.3%	47.6%	0.70
Body mass index	27.9±0.4	28.6±0.3	28.5±0.5	0.34
Waist-to-hip ratio	0.84±0.01	0.86±0.01	0.87±0.01	0.0019

^{*} Adjusted for education, race (white or non-white), age alcohol consumption, and gender

been informed of high blood pressure by their health care providers were under treatment. Hypertension leads to many forms of cardiovascular disease, including stroke, transient ischemic attack, congestive heart failure, and coronary heart disease.17 In North Carolina the mortality rate from stroke is considerably above the national rate. For instance, in 1988 there were 191 stroke-related deaths per 100,000 North Carolina residents, 18 a 28% excess mortality compared to the national rate of 149 per 100,000 residents. We know that treatment of mild, moderate, and severe hypertension significantly reduces the incidence of morbidity and mortality from stroke.19 We do not know how many correctional employees have suffered serious hypertension complications but, from a prevention viewpoint, it is imperative that subjects with observed hypertension receive treatment.

It is not surprising that the percentage of correctional employees who smoke is higher than in the state population as a whole. Smoking is more prevalent among those of lower socioeconomic status and those employed in "blue collar" jobs such as that of correctional officer. Many correctional officers report smoking to "en-

hance" their alertness and alleviate the boredom of overseeing inmates.²⁰ Nor is the social environment conducive to quitting cigarettes because many prison inmates and fellow employees smoke. Smoking increases the risk of myocardial infarction and sudden death.² As with stroke, the incidence of myocardial infarction in North Carolina in 1988 was 32% higher than in the nation as a whole (318.6 per 100,000 people vs. 241.5 per 100,000 people¹⁸). Given these data, programs to reduce the prevalence of smoking are needed in North Carolina correctional facilities.

The higher proportion of correctional employees found to be overweight compared to the North Carolina BRFSS data may be due in part to the different methods used in the two surveys. We measured height and weight and computed the body mass index whereas the BRFSS study relied on self-reported data (which tend to slightly underestimate body weight and overestimate height). However, measurement differences do not explain all of the excess obesity observed in our study. Correctional officers report² that their jobs are largely sedentary and that they spend much of their work shift sitting

quietly in a chair, walking slowly and watching inmates, or performing clerical duties. Furthermore, many correctional employees report frequent eating and snacking to "stay alert" on the job. Such eating behavior, coupled with physical inactivity, promotes obesity. It is true that the correctional employees reported more leisure physical activity than North Carolina residents in general, but not enough to lower body fat.

Employees of maximum-security prisons had higher adjusted blood pressures compared to employees of minimum-and medium-security prisons. This raises the question of whether occupational stress is higher at the maximumsecurity facilities. Based on conversations with correctional employees, it seems likely that this is so,9 especially since our data were adjusted for differences in education, race, age, alcohol consumption, and gender at facilities of differing security levels. We did find increased abdominal adiposity in employees at higher security prisons, and there is some evidence that abdominal adiposity increases the risk for hypertension.21 However, future studies are needed to better understand this association.

[†] p-value with two degrees of freedom

Total cholesterol levels were highest in minimum-security employees. The basis for this result is not at all clear although a higher proportion of minimum-security facilities are located in rural areas of North Carolina. Geographical differences in cholesterol levels have been reported for children in North Carolina, ²²

but have not been studied in adults. Before we can decide about this, we need a better understanding of CVD risk factor differences between rural and urban areas of the state.

Existing health promotion programs in the Department of Correction target CVD risk factor reduction, but these pro-

grams are limited by a lack of personnel and financial resources. Based on the worrisome results of this pilot study, we recommend more interventional efforts by institutions and health care providers to reduce CVD risk factors in correctional employees in North Carolina.

Acknowledgments: The authors thank research assistants Karen Poole, Arlene Peters, Chase Robertson, Susan Veazey, Carleton Bessinger, Amy Bassinger, Phyllis Banner, and Claudia Stanley, and convey their gratitude to their advisors

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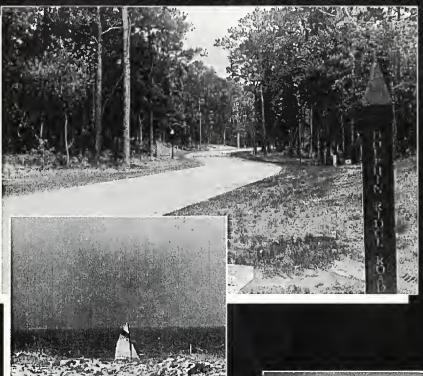
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Health Watch

VOLUME 55 / NUMBER 8 / AUGUST 1994

Think First

HEAD & SPINAL CORD INJURIES

National Head & Spinol Cord Injury Prevention Program



THINK FIRST, the National Head and Spinal Cord Injury Prevention Program, is an award-winning public education effort targeting the high risk age group. Developed by America's Neurosurgeons, it is presented at no charge in junior and senior high schools. The upbeat program educates young people about personal vulnerability and risk taking. The message is that you can have a fun, exciting life, and you do it without hurting yourself if you think first and use your mind to protect your body.

Compiled, with permission from the THINK FIRST Program, by Bob Burns, Assistant Director, Communications, North Carolina Medical Society.

The problem

Every year in the United States about 10,000 persons sustain spinal cord injuries and another 500,000 suffer serious head injuries. Approximately 50% of all head and spinal cord injuries are caused by motor vehicle crashes. The 15-24 year age group is at greatest risk for these types of injuries.

The impact of head and spinal cord injuries can be devastating, both to the victims and their family. In addition to physical changes there are social, emotional, financial and vocational considerations. Reasoning and memory skills may be impaired. The ability to speak or concentrate may be lost. The emotional and cognitive deficits that come with head and spinal cord injuries often prevent victims from pursuing an independent lifestyle. Also, the injuries and resulting complications may be fatal.

What can be done?

Fortunately, most head and spinal cord injuries are preventable. Because neurological surgeons are responsible for treatment, and there often is little that can be done to improve neurological function, neurosurgeons have become involved

in preventive efforts. One of these preventive efforts was the creation of the THINK FIRST program. This joint project of the American Association of Neurological Surgeons and the Congress of Neurological Surgeons, THINK FIRST is designed to bring to the public, especially those young people most vulnerable to injury, an understanding of the causes and results of injuries to the head and spinal cord and the prevention of these injuries. It employs four components: basic education, reinforcement, general public education and public policy initiatives.

Basic Education

The primary component of the THINK FIRST program, basic education targets the areas of personal vulnerability and the consequences of risk-taking. Through the use of trained presenters, films and focused discussion young persons (elementary, middle and high school students) are exposed to various aspects of head and spinal injuries.

First the definition and causes of head and spinal injury such as motor vehicle crashes, drinking, diving, all-terrain vehicles and action sports are highlighted. Following this presentation, persons who have spinal cord or head injuries discuss their injuries—how they occurred and the physical, emotional and social consequences that resulted. The next segment involves emergency medical personnel describing proper bystander behavior should a person witness an incident in which persons may have sustained head or spinal cord



injuries. The final portion of the program is an optional wheelchair obstacle course. Here volunteer students in wheelchairs negotiate a constructed obstacle course before the audience. This is designed to provide some awareness of the problems confronted in everyday life by people in wheelchairs.

Reinforcement

To reinforce the basic education program, options for continued prevention education and practice within the school environment are encouraged. This may involve the development of a safety club or similar organization to tackle local or regional risk issues. Other reinforcement activities may include essay and poster contests, skill training for appropriate bystander behavior, school and community billboards, health fairs, bike rodeos, and alcohol free graduation events.

General Public Education

To get the message out to the whole community of the ongoing local and regional preventive efforts the use of television, radio and local newspapers for public service announcements and news items is encouraged. Areas of risk such as swimming pools, ponds, creeks, and beaches are targeted with appropriate preventive signage using local civic groups for implementation. Other activities may include media interviews, health fairs or educational materials development.

Public Policy Initiatives

Keeping abreast of policy issues that can lead to laws that enhance the prevention of head and spinal cord injuries is the final component of the THINK FIRST program. One of the most pressing public policy goals of the national THINK FIRST program is the establishment of central nervous system injury registries in every state. Such registries can provide better data on which meaningful prevention, therapeutic, and rehabilitation programs can be developed. Another public policy initiative affecting prevention programming in the states is the levying of fines on traffic offenders (such as speeders) and other offenders, with the money set aside for prevention programming.

How to start a local program

The materials available from the national THINK FIRST program are designed to assist those neurosurgeons and others who decide to launch a similar program in their community. Depending on local needs and distance between programs, you may either want to join an existing effort, or begin a new program. Various groups will approach this in different ways based on the resources available, the geographic region to be covered and the special needs of the community.

Most of the local THINK FIRST programs are based at a medical center, under the direction of a neurosurgeon. The sponsoring physician is responsible for areas such as garnering support for the program from his/her medical center, other local neurosurgeons, and the community; talking to the media; fundraising as necessary; and liaisons with the national THINK FIRST office.

The actual day-to-day administration of the program is generally conducted by a nurse, physical therapist, occupational therapist, health educator, medical auxiliary member or other employee of the medical center. Depending on the program's ambitions, this can be a part-time coordinator position with only a few schools visited during the year, or a full-time position responsible for conducting many school presentations.

The cost of operating the program also varies depending on the ambition of the program. Major expenses include the salary of the staff coordinator, speaker fees (especially for the speaker with injuries), and initial equipment investment (e.g., films, spine and skull models). It is helpful if the sponsoring medical center donates some or all of the coordinator's time, as well as office space and limited phone, postage, and photocopying.

The following steps are suggested to establish a program:

- Contact the national THINK FIRST office to learn about programs that may already be underway locally. (THINK FIRST Foundation, 22 South Washington Street, Park Ridge, IL 60068. Phone: (708) 692-2740.)
- If none, try to enlist local support for establishment of the program. The national office can provide advice on coalition-building activities and other necessary actions to initiate the program.
- 3. Once local support for the program has been obtained, and a person identified to serve as program coordinator, that person must be trained by a regional training coordinator and visit one of the national THINK FIRST model program centers. There, an actual THINK FIRST school presentation can be see, and instruction in program replication will be received.

Beach Sports and Swimming Pools

Water can be tricky. It may look deeper than it actually is.

Fact

Each year, about 1,000 diving-related injuries occur. This accounts for 10% of spinal cord injuries and 60% of all recreational injuries.

Fact

95% of all diving injuries in pools occur in five feet of water or less.

Fact

Alcohol affects the part of the brain which exercises control, judgment, and restraint. Many diving injuries are related to drinking.

So, to protect yourself from injury:

- Check the depth first. Recommended depth for recreational diving is a minimum of nine feet of water.
- Walk into the body of water and learn how deep it is as well as where rocks, sandbars, or other objects may be located.
- · Don't drink and dive.
- When body surfing, choose the beach carefully and know the wave patterns. When coming on shore, avoid surfing head-first and roll horizontal to the waves.

Helmet Use

For Bicycles, Skateboarding, Rollerblading, All-terrain Vehicles, Motorcycles

Helmets prevent serious head injuries.

Fact

Head injury is the leading cause of death in bicycle crashes.

Fact

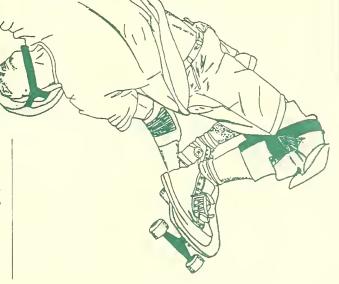
The risk of head injury for unhelmeted bicyclists is more than 85% greater than for helmeted bicyclists.

Fact

Each year, more than 50,000 bicyclists suffer serious head injuries and many of them never recover.

Fact

Most motorcycle crash injuries are due to the lack of operator skill, intoxication, and no helmet.



So, be cool and protect your head:

- · Ride on the right side of the road with traffic.
- · Wear protective gear for your knees, elbows, and wrists.
- · Take a motorcycle rider education course.



Car Travel

Automobile safety is one of the most important reasons to THINK FIRST.

Fact

Motor vehicle crashes are the leading cause of head and spinal cord injuries. Annually, about 46,000 people die and more than 3.5 million are injured in motor vehicle crashes.

Fact

The leading cause of death and disabling head and spinal cord injuries is alcohol-related traffic crashes.

Fact

There are laws in every state requiring use of child restraint seats.

So, to protect yourself:

- Wear your safety belt in the front and back seats of your vehicle.
- Put your child in an age/weight appropriate child/infant car seat.

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The James Bell Bullitt Enigma

A Case of Metaphorical Siamese Twins

John B. Graham, MD

When I became a physician in the 1940s, there must have been a shortage of suitable names. For example, the 1979-1980 Directory of Medical Specialists lists three John B. Grahams who obtained their medical degrees between 1940-1952 (Fig. 1). One became a gynecological surgeon in Buffalo, another was a urologist in Chicago, and the third (I) taught and practiced pathology in Chapel Hill. I never met or spoke with either of my co-triplets, but was kept aware of their existence by an occasional misdirected request for a reprint on cancer of the cervix or the prostate, subjects on which I had never published.

Last year, while collecting and analyzing historical data about the UNC Department of Pathology, I encountered an even more remarkable coincidence. It began in the mid-19th century, and I call it—with apologies to Arthur Conan Doyle—"The Case of the Metaphorical Siamese Twins." My reasons for so denoting it will become apparent as the tale unfolds.

Dr. James Bell Bullitt of Chapel Hill

I knew one of the now-deceased twins, Dr. James Bell Bullitt of Chapel Hill. He had been a member of our department for 51 years, and the building we now occupy is named for him. He was my teacher from 1939-1940, my colleague from 1946 until his death in 1964, and the subject of an essay I prepared when the Brinkhous-Bullitt building was dedicated in 1983. But, though I knew him for 30 years, I did not know very much about his family. Evelyn McCarthy, his granddaughter and a former staff member at the UNC School of Medicine, led me to the facts about the remarkable Bullitt family, which produced leaders for the state of Kentucky and the nation for 200 years.

In brief outline, this is Dr. Bullitt's story. He was born in Louisville, Kentucky, in 1874, attended Rugby School there, graduated from Washington and Lee University in 1894, and obtained his MD at the University of Virginia in 1897. After two postgraduate years in Charlottesville, he accepted the chair of

Dr. Graham is Alumni Distinguished Professor of Pathology (Emeritus), UNC School of Medicine, Chapel Hill 27514.

Gitaliam John Barkley Cert S 666 Elm St Buffalo NY 6 15 Casticdale Utah MD Harvard 40 Intern (Calif Hosp) 40-41 Asst Res Path (New Eng Deaconeas Hosp Mass) 41-42 Surg Research Feil (Harvard-Mass Gen Hosp) 42-43 Asst Rea Surg 43 Res Surg 1st Surg Ser 45-46 (both at Boston City Hosp) Asat to Dr R H Smithwick 44-45 Asst to Dr J V Meigs 51-52 Asst Surg 51-56 (all at Mass Gen Hosp Boston) Staff (Vincent Meml Hosp Boston) 51-56 Jr Gynec (Pondville Hosp) 51-56 Chief Gynac (Roswell Park Mcml Inst Buffalo NY) 57-- Surg Feil (Tufts) 45-47 Instr Surg (Boston) 47-48 Assoc Prof Surg (Ore) 48-50 Instr Surg (Harvard) 51-56 Assoc Prof Gynec 57-64 Clin Assoc Prof Gynec 64-- (Buffalo) AMA-ACS(F)-SPelvic Surg

GRAHAM John B Cert Path (PA) Box 607 Chapel Hill NC 27515 b 18 Goldsboro NC MD Cornell 42 Intern 42-43 Clin Tng (both at NY Hosp) Asst Path (Cornell) 43-44 Instr Path 46-49 Asst Prof 49-53 Assoc Prof 53-58 Prof 58-66 Distinguished Prof 66-(all at NC) Dir Genetics Tng (Population Center) Capt MC AUS 44-46 Infantry Battalion Surg Ryukus Campaign Combat Med Badge AMA-AAAS Research blood coagulation & human genetics & FERTILITY CONTROL

GRAHAM John R Cert U 59 636 Church St Evanston III 60201 b 26 Chgo MD Northwest 52 Intern (Cook Co Hosp Chgo) 52-53 Res U (Chgo Wesley Meml Hoap) 53-54 Res Gen Surg (MacNeal Meml Hoap Berwyn III) 55 Sr Res U (VA Hosp Hines III) 55-56 Sect Chief U 56-57 Att U (VA Research Hosp Chgo) U (Evanston Hosp) Asst Prof U (Northwest) AMA-ACS(F)-AUANC-Alpha Omega Alpha

Fig 1: The John B. Graham "triplets" as cited in the 1979-1980 Directory of Medical Specialists.

Histology and Pathology at the University of Mississippi where he served for 14 years. He came to Chapel Hill in 1913 as Professor of Histology and Pathology, retired in 1947, served as a beloved Emeritus Professor until 1960, and died in 1964.

The Prolific "Dr. Bullitt"

I knew little about Dr. Bullitt's publications and was unable to find a curriculum vitae in the school's somewhat chaotic files. I decided to generate a bibliography by systematically searching *Index Medicus*, Volume One, of which had been published in 1879. It was a bewildering experience. For the years prior to 1907 I found 72 citations listed under the name of James B. Bullitt, MD, of Louisville, Kentucky. This explosion of papers

was followed by a publication eclipse that lasted from 1907-1925, after which there were seven more publications by James B. (or James Bell) Bullitt.

The papers published before 1907 covered a wide range of subjects, mostly surgery or gynecology, including descriptions of new surgical instruments and techniques. The most astonishing was a paper published in 1900 that described a kitchen-table operation at which a 245-pound ovarian cyst was removed from the wife of a Kentucky farmer.² The cyst was unilocular and contained at least 36 gallons of fluid. The report names 10 doctors from Shelbyville, Kentucky, who witnessed the operation at which "we had to nail [the kitchen table] to the floor and brace [it] with pickets knocked off the garden fence." I remembered that my medical school classmates had known of and had ascribed this publication to our Dr. Bullitt. Yet the operation, at which Dr. James B. Bullitt was recorded as anesthetist, had occurred on May 13, 1897, and our Dr. Bullitt did not obtain his MD until later that year. I came to the obvious conclusion: there must have been two Drs. James Bell Bullitt, both of them born about the same time and both of them natives of Louisville, Kentucky.

The Mystery Solved

The correctness of my conclusion was established when I located biographies of both men on page 214 of the first (1925) edition of Who's Who in Medicine (Fig. 2). The citations show that one Dr. Bullitt had been born in 1863 and the other (our Dr. Bullitt) in 1874. Our Dr. Bullitt had lived in Chapel Hill, while his prolific "Siamese twin" originally practiced in Louisville, moved West in 1907 and, after a medical eclipse of several years (while he farmed), re-entered medical practice in San Jose, California. It was the restless California Bullitt who had published the 72 papers from Louisville prior to 1907.

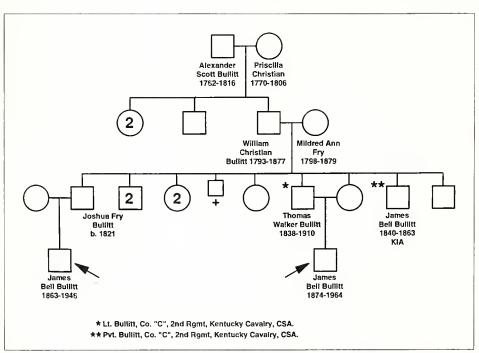


Fig 3: Partial pedigree of the Bullitt family of Louisville, showing the first cousin relationship between the Drs. James Bell Bullitt, indicated by the arrows.

BULLITT, James B.:

Pathologist; b. Louisville, Ky., 1874; s. Thomas Walker and Annie Priscilla (Logan) t; ed. Washington and Lee Univ., B. A. M. A. 1895; Univ. of Va., M. D. 1897; 1894; M. A. 1895; Univ. of va., m. D. Phi Beta Kappa, Alpha Omega Alpha, Phi Gamma Delta; m. Charlottesville, Va., 1901, Evelyn Bryan; ch.: Thomas Walker (dec.), James Bell, Jr., Margaret Randonn.
strator, Anatomy, Univ. of Va., 1898-1903;
Prof., Anatomy, Path., Univ. of Miss., 190313; Prof. Path., Univ. of N. C. 1913-1925.
Capt., Major, M. C., May, 1918-July, 1919;
Lt. Col., M. R. C. Mem. A. M. A.; S. Med. Assn.; Am. Microscopical Soc.; Am. Soc. Clin. Path.; Assn. Mil. Surg., (F.) A. A. A. S. Indpt. Dem. Epis. Res.: 306 Rosemary Office: Caldwell Hall, Chapel Hill, N. C.

BULLITT, James B.:

Roentgenologist; b. Louisville, Ky., 1863; s. Joshua F. and Elizabeth Roland (Smith) Bullitt; ed. Univ. of Louisville, Louisville, Ky., M. D., 1899; m. (1st), Oakland, Oalif., 1896, Clare Ralston; (2nd), Oalif., 1918, Edith Selley; ch.: Louis Ralston, Elizabeth Roland, Minor Dixon, Florence Ann, Martha Bell House surg. Hesp for Partived and House surg., Hosp. for Ruptured and Crippled, 1869-90; post-grad. study, Berlin, Bonn Heidelberg, Vienna, Dublin, 1890-92; surg., Old Dominion Copper Co., Globe, Ariz., 1892-94; gen. pract., Louisville, Ky., 1894-1908; splty., San Jose, Calif., 1920-25. Dir. San Jose Hosp.: Roentgenol., St. Clara Co. Hosp. Mem. Calif. State Med. Soc.; A. M. A. (ex-sec. surg. sect.); Am. Roentgen Ray Soc., (past-pres.); Ky. State Med. Assn. (ex-sec.). Dem. Res. and Office: San Jose, Calif.

Fig 2: The James Bell Bullitt citations in the 1925 (first) edition of Who's Who in Medicine.

I wondered why two prominent physicians from the same city bore exactly the same name when they were obviously not father and son. Mrs. McCarthy

knew nothing of the earlier Dr. James Bell Bullitt, nor did other living members of her family. I was able to construct an informative pedigree from data provided by a current genealogist (Fig. 3). It shows that the Drs. Bullitt were sons of brothers, therefore first cousins. Both had been named for their fathers' (unmarried) brother who had been killed on July 6, 1863, during the Civil War. Joshua Bullitt, the oldest brother, named his son born in 1863 after his recently deceased younger brother. Our Dr. Bullitt (born in 1874) was the son of Thomas Walker Bullitt, who was two years older than the deceased warrior. Both Jim Bullitts had gone to medical school—a rarity among Bullitts, who were more apt to be lawyers and statesmen-and had become prominent. The older James B. had not only been a prolific writer but had also been president of the

American Röentgen Ray Society in 1904. His presidential address, decrying the then current fad of treating pulmonary tuberculosis with x-ray,³ makes fascinating reading. When he gave up farming, he returned to medicine in 1920 as a radiologist and practiced in San Jose until his death in 1946.⁴

Our Dr. Bullitt was also a polymath who included Early American archeology among his many interests. But I found only two articles by him in *Index Medicus*, both published between World War I and World War II. A true Bullitt, he did not lack ego, but he published sparingly. One of his indexed papers was the annual oration to the Mississippi State Medical Society in 1931, a talk entitled "State Medicine." It makes very interesting reading and is pertinent to our present concern with universal medical care.

The Loss of Private Bullitt

Since my curiosity had been piqued, I wondered where and how the original James Bell Bullitt (Fig. 4) had been killed on July 6, 1863. He had been a member of Morgan's Brigade of Cavalry during their quixotic, 1,000-mile long, Confederate raid of July 1863. The Brigade swept from Tennessee around Louisville, crossed the Ohio River into Indiana and Ohio, bypassed Cincinnati, and almost reached Pittsburgh. Morgan's purpose was to shake up the Yankees by taking the war directly to them, causing them to divert troops and thereby relieving some of the pressure on General Bragg in Tennessee (Footnote 1). Morgan succeeded in both respects, but lost many of his men, was captured and imprisoned, made a daring escape, and was killed in battle a year later. Mrs. McCarthy obtained the full story of Morgan's raid for me, and it is a thriller (Footnote 2).

The Filson Club in Louisville, Indiana and Onio. dedicated to "collecting and publishing historical material especially pertinent to Kentucky," supplied me with the roster of Company "C" of the 2nd Regiment of Morgan's Brigade. James B., Neville, and Richard S. Bullitt were privates, and Thomas W. Bullitt (the father of our Dr. Bullitt) was a 2nd lieutenant. James Bell Bullitt was killed near Bardstown, Ken-

tucky, early in the raid. Bullitt family legend holds that he was killed by a perfidious Yankee while trying to succor a wounded comrade under a flag of truce. His brother, Lieutenant Thomas Bullitt, was later captured and imprisoned with General Morgan, but escaped with Morgan to fight again.

James Bell Bullitt's death in battle had a direct impact on the naming of male infants in his large family—and a secondary, confounding effect on the medical literature (resolved here). In recent years an increase in immigration from the Third World, a trend to smaller nuclear families, and the recruitment of medical students from minority groups lessen the probability that others will be confused by the phenomenon of multiple John B. Grahams. And the probability of seeing another pair of metaphorical Siamese twins such as the James Bell Bullitts,

never very large, must now be vanishingly small. □

Footnotes

'Gen. Braxton Bragg—after whom Fort Bragg, NC, was named-was an indecisive and ineffectual Confederate general. Because he had been at West Point with Jefferson Davis, Davis depended heavily on him for military advice. Davis's preference for Bragg was greatly resented by the other generals under Bragg's command, especially the brilliant and charismatic cavalrymen John Hunt Morgan of Kentucky and Nathan Bedford Forrest of Tennessee. Forrest once bitterly remarked that "Jefferson Davis is trying to do what God couldn't do, make a soldier out of Braxton Bragg." Forrest-who organized the Ku Klux Klan during Reconstruction-is also credited with the military axiom that victory comes to the leader who arrives earliest at a battlefield with the largest force ("Be there fustest with the mostest").

²The story of Morgan's Raid was published in the January 1891, issue of *Century Magazine*. The account was written by Brig. General Basil Duke, Morgan's second in command, Orlando B. Willcox, a Union general who served in Indiana at the time of the raid, and Captain Thomas H. Hines, who had planned Morgan's Ohio prison break.

The full account was republished privately after World War II by the Book Nook Press of Louisville, Kentucky. Mrs. McCarthy obtained a copy for me. The title of the (undated) reprint is: "The Great Indiana—Ohio Raid by Brig. General John Hunt Morgan and his Men, July 1963." It contains a good introduction and commentary by Don D. John, several useful maps, and a number of good pen sketches.



Fig 4: A photograph thought to be of the original James Bell Bullitt who was killed at Bardstown, Kentucky, on July 6, 1863, during Morgan's raid on Indiana and Ohio.

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Surviving the Siege

My Experience at Omaha Beach from D-Day to D+3

Jack Hughes, MD

In June 1944, just 14 months out of medical school, I found myself crossing the English Channel as part of the Normandy invasion. In remembrance of the recent 50th anniversary of D-Day, I recount my experience during the first days of the siege:

At 0800 on June 6, 1944, I was standing on the bow of LST 497 some 2,000 yards offshore. We were heading for the Fox Red sector of Omaha Beach east of Pointe du Hoc. The tank deck was loaded with 155 mm Howitzers and a field hospital with 20 Army doctors from the 29th Division. I felt like Julius Caesar in that I came and I saw, but what I saw wasn't supposed to be happening. Instead of the minimal enemy resistance we had anticipated there was carnage on the beach due to intense fire from 88s and machine guns in pillboxes that had not been knocked out by the pre-invasion bombardment. As we approached the beach the ship immediately in front of us took a direct hit. Unlike the great Caesar I ran—probably the fastest 100 yard dash of my life—to my battle station in the stern of the ship, where I was supposed to have been all along. There I stayed, sitting on the deck with my helmet pulled halfway down to my knees (at least it felt that way), while the ship backed down at flank speed. We moved between two cruisers, the Augusta and the Tuscaloosa, and the Captain ordered the anchor dropped and the guns secured.

We lay at anchor between the cruisers until dark and then moved in closer to shore to take on our only load of casualties. About 120 wounded men (two dozen seriously wounded) were jammed into a LSM landing craft without the use of stretchers. Most of the less seriously wounded were able to get topside using the cargo nets and various contrivances designed on the spot by those of us standing by. To get the others on board we had to send down corpsmen to put them on stretchers so they could be hoisted up by block and tackle rigs we had made the week before.

The seas were running eight to 10 feet high, and soon all but one corpsman were too seasick to function. The last healthy

corpsman and I went down into the LSM—and shortly thereafter we too were throwing up everything but our toenails. Eventually, in spite of the high seas and having to stop and retch every couple of minutes, we got all the wounded topside.

At last I was able to get up the cargo net. A fellow medical officer greeted me with the news that the Army doctors were taking good care of the wounded and it was not necessary for us to help in the tank-deck operating room. When we then went inside and my partner saw my ashen face he suggested that I go lie down immediately. Because he was senior to me (by two days), I gladly followed orders and after making quick rounds—probably to forestall any guilt feelings, I found a bunk and lay spread eagle with my face down until I gradually recovered.

Three hours later I got up. The storm had abated temporarily and the seriously wounded were transferred to a nearby Navy hospital ship. But the seas were still too high for us to beach and the storm began to worsen again. During the next 24 hours we rode out the worst Channel storm in 50 years. At times, when the wind and channel currents flowed in the same direction, the ship would drag anchor even with the engines running at flank speed.

By D+2 conditions had improved a little. We were able to send the Army doctors and some of their equipment ashore in a landing craft. But it was not until D+3 that the ship could be beached. Then the tank deck was cleared in record time and the ship left the beach as soon as it was possible to get off. We headed at full speed for the Naval hospital at Southampton with our load of wounded, including nine Rangers who had suffered minor wounds while scaling the cliffs at Pointe du Hoc.

Once in a while I get to thinking what would have happened if we had not received the order on D-Day to turn back and had beached the ship as originally planned. We would have been sitting ducks for 10 hours. I get a sinking feeling that many of us sitting ducks would have ended up as dead ducks like so many others on the beach that day.

Dr. Hughes, a retired urologist who lives in Durham, is a member of the Journal's Editorial Board.

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"There is Nothing in This World Can Make Me Joy"

Fluoxetine (Prozac) Poisoning

Ronald B. Mack, MD

We all have bad days on occasion; it is part of being human. As we rise each morning to seize the day we can only hope that we will have many more good days than bad. The line quoted in the title comes from Shakespeare's King John. 1 It is not one of the Bard's most popular offerings and you rarely see it performed. It tells of the King-brother of heroic Richard the Lionhearted-who ruled during Robin Hood's time. John is probably best remembered for being forced by his rebellious barons to sign the Magna Carta. He was referred to as a heretic, a murderer, and a usurper. Was the poor king dysthymic? (Say what?)

A Depressing Outlook

Being depressed is a common condition in our country. According to the Centers for Disease Control and Prevention, one in every three of us feels troubled at least once a month.² The report is based on research involving 45,000 adults 18 years or older. Thirty-one percent acknowledged having mental health problems, including stress and depression. Appar-

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ently you need to learn an entirely new vocabulary when you begin to discuss the entity known as depression. For example, major depression,3 also known as unipolar or clinical depression, refers to recurrent episodes of being depressed alternating with periods of feeling good. Dysthymia³ is a type of depression in which symptoms are relatively mild but are present most of the time and persist for at least two years. Secondary depression³ occurs in the setting of a medical or other primary psychiatric disorder such as general anxiety disorder, substance abuse, etc. Reactive depression³ describes the grief people experience when mourning a loss.

Be aware that the 1992 annual report of the American Association of Poison Control Centers Toxic Exposure Surveillance System,³ reporting on 1,864,188 human exposure cases, ranked antidepressant overdose, primarily of tricyclic antidepressants, as the leading cause of deaths due to chemical agents. It would be helpful if we had antidepressant drugs that were safer to administer to people who already feel like they are followed by a black cloud and might possibly choose to enter the kingdom of heaven rather than the hell of earthly existence. There is such a class of drugs, referred to as the SSRIs-Selective Serotonin Reuptake Inhibitors-of which fluoxetine

(Prozac) is by far the most prominent example. Since its approval by the Food and Drug Administration in 1987, more than six million Americans have taken the drug. By 1990 it had become the most frequently prescribed antidepressant in the world.³ Sales of this drug reached \$1 billion per year in 1993.³

Antidepressant Theories

Fluoxetine is an atypical antidepressant that selectively blocks serotonin re-uptake as its primary mechanism of action.5 It is generally free of effects on catecholamines, that is to say, there seems to be no effect on the neurotransmitters norepinephrine and dopamine.6 This is an important point in terms of side effects and the effects of overdose. Tricyclic antidepressants, the agents most frequently used during the past several decades, probably work by blocking norepinephrine (and some serotonin) uptake at the nerve terminals in the brain. By interfering with neurotransmitter uptake, tricyclics increase intrasynaptic levels of these chemicals, allowing for a resumption of normal nerve impulse flow and relief of depression.

Current theory holds that depression is not a result of the fact that the Chicago

Cubs have not won the National League pennant since 1945. The present hypothesis is that mood disorders are caused by an imbalance in neurotransmitters. This theory, known as the biogenic amine hypothesis,7 concerns itself with the three major neurotransmitters located in the synapses of the brain—norepinephrine, serotonin, and dopamine. The regulation of these chemicals involves a process referred to as uptake, in which some of the neurotransmitter molecules in the synapse are absorbed back into the original nerve endings. There they either degenerate or are repackaged to be sent out again to do what they are programmed to do. At times, probably as a result of genetic and environmental factors, the amounts of neurotransmitters become imbalanced and the individual's grip on reality gives way. According to this theory, an excess of one or more transmitters results in mania, and a deficiency results in depression.

Certainly this imbalance of neurotransmitters, or humors as I prefer to call them, bring to mind one of my personal medical heroes, Galen, the physician and philosopher of the Roman Empire. Wouldn't he be proud of the biogenic amine theory?7 According to his theory of humoralism8 all things were composed of the four elements: fire, air, earth, and water, which had the qualities of being hot, cold, dry, and wet respectively. These elements, taken in as food, were transformed by the heat of the digestive system into four humors: blood, phlegm, black bile, and yellow bile. Galen believed that if the humors were combined in correct proportions, the human organism would function properly and that imbalance of the humors resulted in disease. He also believed that the balance, deficit, or excess of each of the four humors determined not only health but temperament as well: blood made a person cheerful; phlegm, not easily excited, cool; yellow bile, choleric or irascible; and black bile, gloomy or melancholy. We can see that depressed patients would be said to have an excess of black bile. Galen and his colleagues treated an increase of humors by bleeding, purging, or

sweating; a decrease of humors by diet and drugs. The literature alleges that humoralism was unchallenged until the 16th century when Paracelsus, et al began to question Galen's hypothesis and pointed out, to those who would listen, the errors and inconsistencies of the theory.

Is humoralism dead? I don't think so—we use "chest rubs" for respiratory illnesses, plasmapheresis for certain uncommon systemic disease, "cupping," whole bowel irrigation in certain toxicology disasters, and so on. And we accept the "humoral" imbalance that causes emotional disturbances.

"It is important for prescribers to realize the major differences in potential toxicity of the ever popular tricyclic antidepressants in contrast to the serotonin inhibitors. This could influence the choice of antidepressant in a given patient."

Antidepressant Effects

It is important for prescribers to realize the major differences in potential toxicity of the ever popular tricyclic antidepressants in contrast to the serotonin inhibitors. This could influence the choice of antidepressant in a given patient. The pharmacologic action of tricyclic antidepressants⁹ such as imipramine involves distinct anticholinergic activity, especially of muscarinic receptors. These drugs also block the re-uptake of norepinephrine by the presynaptic terminal, increasing the adrenergic effects of norepinephrine, and they block the re-uptake of serotonin. Thus, in simple terms, drugs of this class

treat depression by inhibiting central biogenic amine re-uptake, thus correcting the deficiency of norepinephrine and serotonin thought to be present in endogenous depression. Overdose of tricyclic antidepressants can produce cardiac toxicity, coma and convulsions and, in too many cases, death. Fluoxetine, on the other hand, has a high degree of serotonin (5-hydroxytryptophan or 5-HT) receptor specificity. As a result it has a low incidence of adverse anticholinergic effects, orthostatic hypotension, or cardiac conduction abnormalities. 13,14

Fluoxetine is rapidly absorbed after an oral dose; peak levels occur four to six hours after therapeutic ingestion.11 Bioavailability is almost 100% and concomitant ingestion of food does not appear to interfere with absorption.12 The drug circulates largely bound to plasma proteins (about 94%) and has a large volume of distribution, ranging from 11 to 84 L/kg. It is not the type of drug that you can readily eliminate by extracorporeal means (dialysis, perfusion, etc.) in cases of overdose. Fluoxetine is metabolized in the liver to a desmethyl metabolite, norfluoxetine, which has activity similar to the parent drug.13 Peak plasma concentrations of this highly active metabolite occur nearly 76 hours after ingestion of the parent drug. The half-life of the parent compound after a single dose varies between one to four days with an average of 70 hours;14 the metabolite has a half-life of seven to 14 days.

The therapeutic dosage of fluoxetine ranges from 20 to 60 mg per day, but doses of 40 to 800 mg produce minimal, if any, clinical problems.6 There seems to be a low risk of severe neurologic complications although ataxia, tremor, and dizziness have been reported, as well as mania and insomnia. The induction of mania is more common in patients who have bipolar disorder (manic-depressive syndrome). Common adverse effects include nausea, vomiting, diarrhea, dry mouth, blurred vision, headaches, anxiety, and drowsiness.15 Two studies of acute fluoxetine ingestion in 171 patients did not demonstrate a major risk of neurologic or cardiovascular complications;

a minimal risk is more likely. Seizures can occur but generally fluoxetine has quite minimal epileptogenic potential.

A small number of deaths have followed fluoxetine overdose. In a recent report of 127 cases of fluoxetine ingestion,16 the clinical course in adults (maximum dose was 1,500 mg) was relatively benign; some drowsiness and tachycardia was seen. In pediatric cases, no toxicity was observed at a maximum dose of 3.6 mg/kg. If the drug is ingested with ethanol you can expect lethargy, tachycardia, and hypertension. The estimated human lethal dose is 1,200 to 2,000 mg (that is, 60 to 100 20-mg capsules). Reported deaths from overdose are few indeed; during clinical trials there were two deaths, both of which involved multiple drug overdose.17 Another death, in an adult, involved six grams of the drug.

The treatment of a patient with fluoxetine overdose is non-specific and supportive. No antidote exists. Drug-in-

duced emesis is not recommended because of the possibility of central nervous system depression and seizures.⁶ Gastric lavage is an option in cases of significant overdose that are seen very soon after ingestion or in patients who are comatose or at risk of convulsing. Activated charcoal followed by a dose of a cathartic such as sorbitol is a good choice for producing gastrointestinal decontamination. If the patient is asymptomatic after six hours of observation and has been cleared of suicide risk in terms by a psychiatrist,¹⁸ it is reasonable to send the patient home with telephone follow-up.

Would Prozac Ruin Shakespeare?

King John had every right to be depressed, he made a mess of his country's destiny.¹ His unbridled selfish ambitions led to catastrophe. John was a weak leader, he was reactive and allowed events to control him rather than vice versa. He began his career by usurping the throne from his nephew Arthur, then argued with the King of France until their two nations went to war. The King then proceeded to disobey the dictates of the Pope (England was still Catholic in the 12th century). From that point on his fortunes plunged even further. Arthur was killed and John blamed for the crime; his mother, Queen Eleanor died, the barons deserted him, and a seer predicted that he would give up the throne. Depressed and ill, he moved to an abbey where a monk (a relative, by the way, Brother Murderous Mackus), angry that John had pillaged the churches, killed him with poison. I think the little rat deserved it. I have never forgiven him for harassing Robin Hood. But ponder this thought for a moment, would Prozac have made King John a happier king, less likely to commit despicable royal crimes? Nah!! □

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Strategies for Preventing Diabetic Nephropathy

John R. Raymond, MD, John M. Arthur, MD, PhD, and Eugene Kovalik, MD, FRCP(C)

Diabetes mellitus is the leading cause of end-stage renal disease (ESRD) in the United States. This is no small problem. Diabetes was responsible for 35% of new cases of ESRD reported in 1993. More than 200,000 people needed treatment for ESRD in 1990 at an estimated cost of \$45,000 per patient per year (a total an-

nual cost of more than \$9 billion) and the more than 50,000 diabetic patients with ESRD accounted for over \$2 billion of the total. The human cost of ESRD in the diabetic population is inestimable.

Given the magnitude of the problem, it is understandable that considerable energy has been and is being devoted to

discovering non-pharmacological and pharmacological means of preventing or retarding the progression of diabetic renal disease. In this paper we will discuss the literature relevant to this problem, discussing clinical studies of practical value to the primary care clinician.

I. Non-Pharmacological Interventions

Two non-pharmacological interventions have been studied to date: 1) the rigorous control of blood glucose levels; and 2) the restriction of dietary protein and phosphorus. Other factors, like smoking cessation⁷ or lowering elevated blood cholesterol⁸ (both of which are thought to be risk factors for renal disease in diabetics), have not been assessed in good prospective trials; we will not discuss them here.

Any intervention that hopes to alter the progression of a chronic disease needs ways of identifying individuals at risk before they develop irremediable changes ("early markers"). The development of clinically significant proteinuria (>300 mg of urine protein excretion/day) by patients with diabetes is an ominous sign of impending kidney failure; inexorable progression to ESRD usually occurs within one to several years.² Therefore, clinically significant (so-called "macro-

scopic") proteinuria represents an important but relatively late marker for diabetic nephropathy. Microscopic proteinuria (excretion of 40-300 mg/day) has been used as an early marker for subsequent development of diabetic nephropathy, but its predictive value is less certain. 3-6 Despite their shortcomings, both macroscopic and microscopic proteinuria are the risk markers used in many of the important intervention studies. They represent the best predictors presently available of impending renal disease.

Does Control of Blood Glucose Make a Difference?

This important question has been most clearly delineated in four studies. Bojestig et al² retrospectively reviewed all 213

patients with Type 1 diabetes mellitus diagnosed between 1961 and 1980 in a single district of southeastern Sweden. They reported a dramatic secular change in the cumulative incidence of nephropathy (defined as persistent urine protein concentration >300 mg/L); 30% of patients diagnosed with diabetes between 1961 and 1966 had developed diabetic nephropathy within 25 years, but only 8.9% of patients diagnosed between 1966 and 1970 had. A similar drop (from 28% to 5.8%) was seen during the 20 years after diagnosis when the 1961-1966 cohort was compared to the 1971-1975 cohort. The authors suggested that the lower incidence of diabetic nephropathy was due to better glucose control because their patients' blood sugar levels had improved significantly over the same time. Although provocative and intriguing, this retrospective and uncontrolled

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study is mainly valuable as circumstantial evidence.

Feldt-Rasmussen et al9 studied whether two years of strict glucose control (achieved by continuous insulin infusion) would affect the progression of incipient nephropathy. They prospectively studied 36 patients with Type I diabetes mellitus at a single center in Denmark. Patients with urine protein excretion between 30 and 300 mg/day were randomized to receive either intensified insulin or standard (one to two injections per day) treatment and followed for two years. None of 18 patients in the intensively treated group developed clinically significant proteinuria (>300 mg/day), but five of 18 in the standard treatment group did (p <.05). Mean protein excretion fell slightly from 170 to 160 mg/day in the intensively treated group but rose from 160 to 360 mg/day in the standard group (p<.05). The authors concluded that strict control of blood glucose slowed the progression of incipient diabetic nephropathy. Several shortcomings of the study should be considered: 1) only a small number of patients were studied and at a single center; 2) the study lasted only two years; 3) blood pressure rose slightly in the standard treatment group, and this might explain the outcome; 4) it is not certain that proteinuria is the best surrogate for ESRD (the need for dialysis or kidney transplantation, death, or quality of life would be better); 5) finally, the risk of hypoglycemia from intensive treatment was not well addressed.

Two recent studies partially address those concerns. Reichard et al10 studied the effect of long-term intensive insulin treatment in a prospective study of 102 patients with Type I diabetes at the Karolinska Institute. At entry, patients had mild diabetic retinopathy, poor glucose control, and normal serum creatinine values. Patients, randomized to intensified insulin (three or more injections per day; frequent follow-up and education) or standard (one to two injections per day) treatment, were followed for a mean of 7.5 years. Randomization was successful since both groups had similar numbers of patients with hypertension or were being treated with angiotensin-con-

verting enzyme inhibitor drugs. The main outcome measures were urine protein excretion, and retinopathy and neuropathy scores. Pertinent to our topic, only one of 48 patients in the intensive treatment group developed clinically significant proteinuria (288 mg/day) while nine of 54 in the standard treatment group did (p <.01). Mean protein excretion fell slightly from 81 to 65 mg/day in the intensive treatment group and rose from 91 to 171 mg/day in the standard treatment group (p=0.04). The authors concluded that the incidence of nephropathy (and neuropathy and retinopathy) can be decreased by an intensive, supervised treatment regimen. This was a very well-designed and implemented study, but it has weaknesses similar to the study of Feldt-Rasmussen et al.9 Nonetheless, it is one of the two most important studies published to date.

The other was carried out by the Diabetes Control and Complication Trial (DCCT) Research Group.11 They prospectively evaluated 1441 patients with Type I diabetes mellitus. About half of the patients (726) had no evidence of preexisting retinopathy (the primary prevention cohort), and about half (715) had diabetic retinopathy at enrollment (the secondary prevention cohort). Patients were randomized to get intensified insulin (three or more injections per day or insulin infusion) or standard (one to two injections per day) treatment. Patients in the intensified treatment group also received frequent follow-up and education. The main outcome measures were urine protein excretion, and retinopathy and neuropathy scores. Mean follow-up was 6.5 years.

The DCCT found a lower incidence of neuropathy and retinopathy in intensively treated patients from both the primary prevention and secondary prevention cohorts. Similarly, the mean risk of developing both microscopic (>40 mg/day) and macroscopic proteinuria (>300 mg/day) was 50% lower in the intensively treated patients in both cohorts. The DCCT concluded that the incidence of nephropathy, neuropathy, and retinopathy can be decreased in insulindependent diabetics (with or without preexisting retinopathy) by an intensive treat-

ment regimen. Unfortunately, the benefits were obtained at a price; the risk of significant hypoglycemia was two- to three-fold higher in the intensive treatment group. Overall, the DCCT study was outstanding. Its major weakness was the use of urine protein excretion, rather than the rate of decline of renal function or incidence of ESRD or death, as the main renal outcome.

Overall, the best studies to date support the conclusion that the incidence of diabetic nephropathy can be reduced by improved glucose control. However, definitive proof in the form of a prospective, events-based study remains to be provided. Moreover, intensive insulin regimens require strict follow-up and a degree of education and coordination that may be achievable only by highly motivated patients (and doctors) at highly specialized centers.

Does Restricting Dietary Protein Make a Difference?

Nephrologists have limited intake of protein in hopes of slowing the rate of progression of renal disease in diabetic and other glomerulonephritides. There are studies claiming that protein restriction decreases the rate of deterioration of renal function in unselected patients with renal dysfunction of multiple etiologies. 12-14 These studies do not specifically address the issue of diabetes-related renal dysfunction. They are largely uncontrolled and retrospective, although a recent meta-analysis15 does support the efficacy of protein restriction in non-diabetic patients. Despite these limited data, it has become common practice to prescribe low protein diets (0.6 mg protein/ kg body weight/day) in hopes of retarding the progression of diabetic nephropathy.

It is clear that proteinuria can be significantly diminished by acute protein restriction. For example, Cohen et al¹⁶ conducted a prospective, short-term study of eight normotensive insulin-dependent diabetic patients with protein excretion rates between 22 and 288 mg/day. They

used a cross-over design to compare normal protein (92 g/day) vs. restricted protein (47 g/day) diets. Patients were studied for three weeks in a metabolic unit. Urine protein excretion and glomerular filtration rate (GFR) were used as outcome measures. On the low protein diet, urine protein excretion improved slightly (from 33 to 22 mg/day), and GFR fell. Blood pressure or glucose control did not change.

It seems clear that mild proteinuria can be reduced, at least in the short term, by dietary protein restriction. However, it requires a great leap of faith to extrapolate those results to long-term treatment of human diabetic nephropathy. Evanoff and colleagues16 placed eight diabetic patients on a protein-restricted diet (40 g/ day) for 12 months. Using data derived from each patient during the year prior to the study (that is, historical controls), the authors demonstrated that dietary protein restriction slowed the rate of decline of creatinine clearance and that it decreased urinary protein excretion in most patients. Their study suggests that diabetic patients might benefit from long-term protein restriction.

One very important study was that of Zeller and colleagues¹⁸ who studied the effects of restricting dietary protein on the progression of renal failure in 35 patients (mean age, 34 years) with Type I diabetes mellitus. All patients had baseline impairment of glomerular filtration rate (15%-85% of normal) and urine protein excretion rates exceeding 500 mg/day. Fifteen patients on a "normal" protein diet (>1 g/kg/day) and 20 patients on a restricted diet (<0.6 g/kg/day) were

followed for a mean of 35 months. Randomization was adequate, except that the "normal" protein diet group had slightly higher protein excretion rates at enrollment (4266 ± 715 vs. 3144 ± 417 mg/day). The main outcome measures were GFR (determined by iothalamate clearance) and urinary protein excretion.

Blood pressure and glycemic control were nearly equivalent between the groups during the study. GFR in the protein-restricted diet group declined by 3 mL/min per year, whereas that in the normal diet group declined by 10-12 mL/ min/year. Similarly, protein excretion in the treatment group declined by an average of 760 mg/day at three months and by >200 mg/day at the final measurement, whereas it rose by ≈1 gram at both time points in the control group. Zeller et al concluded that restriction of dietary protein decreased proteinuria and slowed the decline of GFR in Type I diabetics with clinically significant proteinuria.

Recently, the multicenter, NIH-sponsored, Modification of Diet in Renal Disease (MDRD) trial examined the hypothesis that a low-protein diet alone would decrease the rate of decline of renal function and delay the onset of ESRD in patients with non-diabetic renal disease. There was no significant benefit of lowprotein diet when compared with moderate protein-restricted diet on the decline of GFR in 850 patients followed over three years, 2,19 but subset analysis showed that patients who had higher levels of proteinuria on entry did benefit from lowering of their blood pressure.20 It is difficult to extrapolate the result of this large study to diabetics because MDRD patients specifically did *not* include those with diabetic nephropathy. However, the MDRD study did find an effect from blood pressure control. As we will discuss subsequently, blood pressure control is a key element to prolonging the time to ESRD in diabetic patients, but we have a less than satisfactory resolution to the question of protein restriction.

Recommendations

Keeping glucose levels as close to normal as possible reduces the incidence of diabetic nephropathy and slows its progression. The best studies to date have used a degree of patient education and follow-up that may be impractical in usual settings. Moreover, strict glucose control comes at the risk of hypoglycemia, the long-term effects of which are not welldelineated. As a result, it is difficult to weigh the benefits versus the risks of "tight" glucose control. Studies to date do confirm the relationship of elevated serum glucose to the ultimate occurrence and rate of progression of nephropathy. Excellent control of blood sugar levels must be a goal, tempered by what is possible.

Protein restriction may help diabetic patients with nephropathy, but no large scale studies look at this. Given that the MDRD study found no significant effect of protein restriction in patients with non-diabetic nephropathy, it seems that blood sugar control and blood pressure reduction will help more than protein restriction in preserving renal function in diabetic patients.

II. Pharmacological Interventions

Nearly 50% of diabetic patients have coexisting hypertension. Because poorly controlled hypertension is thought to worsen diabetic nephropathy,²¹ several investigators have studied whether control of hypertension would slow the rate of progression of renal disease in diabetes. Two studies, now classics, demonstrate that control of blood pressure is

helpful.^{22,23} Those studies established the value of even small (3-5 mm Hg) reductions in systolic blood pressure, but did not address the issue of whether one type of antihypertensive drug was superior to another.

Because the hypertension of diabetes is usually "salt-sensitive," diuretics have been a mainstay of treatment. How-

ever, diuretics have adverse effects on lipid and electrolyte metabolism that may neutralize the benefits obtained from reduced blood pressure. Moreover, diuretics may produce potentially harmful local effects in the kidney such as increased renal vascular resistance, decreased renal plasma flow, and activation of reninangiotensin systems. Other antihyper-

tensives, including some vasodilators and B-blockers, also increase renal vascular resistance, decrease renal plasma flow, and activate the local renin-angiotensin systems. Therefore, recent studies have focused on the use of calcium channelblocking drugs (CCBs) and angiotensinconverting enzyme inhibitors (ACE1s) because these agents typically preserve renal blood flow, do not increase renal vascular resistance, and antagonize the effects of the renal renin-angiotensin systems. The question is whether drugs belonging to these two groups can slow the rate of progression of renal disease in the diabetic and, ultimately, prevent ESRD.

Natural History of Diabetic Nephropathy

The course of diabetic renal disease typically runs as follows: 1) an asymptomatic phase during which obvious histological damage may be present in the kidneys, 2) development of microscopic proteinuria, 3) development of macroscopic proteinuria, and 4) steady loss of renal function to ESRD.

Early in the course of diabetes, one may find an increase in glomerular filtration rate, often accompanied by increased intraglomerular capillary pressure. In up to 40% of diabetics²⁴ microscopic or macroscopic proteinuria eventually develop, the latter being a harbinger of inexorable progression to ESRD. The course of microscopic proteinuria is more variable, since about a third of patients with this finding develop rapidly progressive renal insufficiency, another third show a slow decline in renal function over many years; a third remain stable.

A number of important recent studies document that drug therapy can retard the progression of renal disease. These studies are important, clinically relevant, and highly exciting, but it is important to view their conclusions critically. In order to avoid over-generalization, we must note whether the population studied included Type I or Type II diabetics, normotensives or hypertensives, patients with or without proteinuria, or patients with normal or abnormal renal function. More-

over, we must ask whether demographic characteristics (such as age and race²¹) permit conclusions to be extrapolated to the patients we see in practice.

Do CCBs Retard the Progression of Diabetic Nephropathy?

Considerable data suggest that some CCBs slow the rate of progression of renal disease in some diabetic populations.26,27 Simply put, it seems that diltiazem and verapamil have beneficial (or at least not harmful) effects and that nifedipine may have detrimental effects, at least in some patients. One possible reason for this difference is that diltiazem and verapamil appear to dilate both preand post-glomerular arterioles while nifedipine acts exclusively on the preglomerular arterioles where decreased resistance may actually increase glomerular capillary pressure.28 Some human studies suggest that these hemodynamic differences translate into important clinical differences.

Bakris²⁹ compared the effects of diltiazem and lisinopril (an ACEI) in eight hypertensive patients (48-61 years old) with Type II diabetes and nephrotic-range proteinuria. In a cross-over design, patients received diltiazem (mean dose = 98 mg twice daily) or lisinopril (mean dose = 16 mg twice daily) for six weeks with a two-week washout period before starting either agent. He found that both drugs reduced protein excretion by about 35%, and had similar antihypertensive efficacy. The effects were clear-cut, but the study involved a small number of patients at a single center for a short period of time.

The same group used a similar design to investigate whether all calcium channel blockers were equally efficacious in reducing proteinuria. In a cross-over trial lasting six weeks (with a two-week washout period), Demarie and Bakris³⁰ gave diltiazem and nifedipine to 14 hypertensive, Type II diabetic patients with nephrotic range proteinuria. This small, short-term study showed that diltiazem reduced protein excretion by about 50% without changing GFR, but

that nifedipine *increased* proteinuria and *reduced* GFR. Both drugs had similar antihypertensive effects. The negative effects of nifedipine were sufficiently alarming that Demarie and Bakris²⁸ stopped their study. Two other short-term studies also showed negative effects of nifedipine on renal function.^{31,32}

In contrast, two longer term studies (lasting 24 and 52 weeks respectively) actually showed some beneficial effects of nifedipine in hypertensive diabetics with incipient proteinuria. The Melbourne Diabetic Nephropathy Study Group³³ compared nifedipine to the ACE inhibitor perindopril in 13 hypertensive and 30 normotensive diabetic patients (Type I and II) with microscopic proteinuria. After 12 months, both drugs were beneficial in hypertensive patients. Chan and colleagues34 reported similar results from a six-month-long study of Hong Kong Chinese patients with hypertension, Type II diabetes, and microscopic proteinuria. Twelve patients treated with nifedipine had a 75% decrease in protein excretion (from 64 to 18 mg/day) compared to a 64% decrease seen with enalapril (from 50 to 18 mg/day). It may be that nifedipine has varying effects on renal function in diabetics, possibly related to the degree of proteinuria or other factors.

The effect of other CCBs on renal function in diabetics has not been addressed in an organized manner. Two short-term (one month duration), crossover studies in hypertensive Type II diabetics found that nicardipine was less effective than enalapril³⁵ or captopril³⁶ in reducing either microscopic or macroscopic proteinuria.

One difficulty with most of the reported studies of CCBs is that they use proteinuria as the main outcome measure. Proteinuria is at best a dubious and still unproven surrogate measure of renal function. In order to prove the value of CCBs in diabetic renal disease, we need a prospective, outcome-based study. Bakris' group attempted to address that issue by measuring creatinine clearance. Slataper et al³⁷ randomized 35 hypertensive patients with Type II diabetes and nephrotic range proteinuria to receive diltiazem, lisinopril, or furosemide and

atenolol. They followed patients for 18 months and showed that both lisinopril and diltiazem lessened both protein excretion and the slope of decline in creatinine clearance over time, but furosemide and atenolol did not. All treatment regimes had similar antihypertensive efficacy. The authors concluded that diltiazem was as effective as lisinopril in reducing proteinuria and in slowing the rate of decline of renal function in their patient group, and that both were superior to the combination of atenolol and furosemide. This was a well-designed and implemented study, but far from conclusive since it involved a small number of patients at a single center and problems with the randomization (there were more black and older patients in the furosemide and atenolol group) may have skewed the results in favor of lisinopril and diltiazem.

A final study from Bakris's group38 suggests that verapamil is as effective as lisinopril in slowing the rate decline GFR and improving proteinuria. Thirty hypertensive Type II diabetics with mild renal insufficiency and macroscopic proteinuria were divided into four treatment groups, each of which received one of the following treatments: lisinopril, verapamil, lisinopril and verapamil in reduced doses, or guanfacine and hydrochlorothiazide. Patients were followed for one year using measurements of renal hemodynamics and proteinuria as end-points. The results of this complex study led the authors to the following conclusions: 1) verapamil was as effective as lisinopril in reducing proteinuria and slowing the decline in GFR; 2) both verapamil and lisinopril were superior to guanfacine and hydrochlorothiazide in terms of improved renal function and side-effect profile; and 3) lisinopril and verapamil together improved renal function and had fewer side effects compared to larger doses of either agent alone. This study, despite its shortcomings, raises the intriguing possibility that combined ACEI and CCB therapy may be better than either alone. One unusual finding was an acute decline in GFR during the first several months of lisinopril treatment. even though proteinuria was improved. The possible detrimental effects of "high"

doses of ACEIs need to be considered in late-stage diabetic renal dysfunction.

Recommendations

Studies of CCBs in diabetic nephropathy have, for the most part, been of relatively short duration (< two years), involved patients from a single center, and used proteinuria as a surrogate measure of renal function. Nevertheless, the studies suggest benefit from diltiazem and verapamil in hypertensive, Type II diabetics with mild renal insufficiency and clinically significant proteinuria. The role of these drugs in normotensive, Type I, or non-proteinuric diabetics remains to be explored. Nicardipine, although only studied in the short term, had beneficial effects on proteinuria in Type II diabetics with mild renal insufficiency. The results for nifedipine have been much more varied, but suggest that it may worsen renal function, at least in some diabetics.

Without doubt, a long-term, multicenter, randomized, controlled, and outcome-based trial of CCBs in a well-defined population of diabetics would be welcome. Unfortunately, the prospects for such a study are dim because of the clearly demonstrated benefits of ACEI therapy in normotensive and hypertensive Type I and II diabetics. The future role of CCBs in diabetics may be limited to the treatment of patients intolerant of ACEIs or as adjuncts to ACEIs.

Do ACEIs Retard the Progression of Diabetic Nephropathy?

Unlike the uncertainty surrounding CCBs, more definitive data are available about the ability of ACEIs to slow the rate of progression of diabetic nephropathy. Most authors have studied Type I diabetics, but data on Type II diabetics are now becoming available. We will review the most important human studies since they point the clinician toward a rational use of ACEI therapy in diabetic patients.

Animal studies have shown a specific vasodilatory effect of ACEIs on efferent glomerular arterioles. This suggests that ACEIs could reduce resistance to outflow of blood from the glomerulus³⁹ and thereby lower glomerular capillary pressure. This is important because elevation of the glomerular capillary pressure is thought to be a major determinant of progressive renal damage in diabetes and other nephropathies.^{40,41}

Kasiske et al recently performed a meta-analysis of 100 controlled and uncontrolled human studies that provided data on either proteinuria or renal function before and after treatment with a hypertensive agent.42 They concluded from multiple linear regression analyses that ACEIs significantly (p < .0001) decreased proteinuria regardless of change in blood pressure, stage of nephropathy, type of diabetes, study design, or treatment duration. Blood pressure reduction itself was clearly beneficial, but ACEIs were superior to all other forms of treatment. We discuss below the best-designed studies, but will not reiterate the conclusions of those papers already mentioned in conjunction with CCBs. We will first deal with studies in Type I diabetics, and then with studies in Type II diabetics.

ACE Inhibitors in Type I Diabetes

Mathieson and colleagues⁴³ studied 44 normotensive Type I diabetic patients with microscopic proteinuria. Patients were randomized to receive captopril (25-100 mg daily) or no captopril for four years. Captopril decreased protein excretion from 82 to 57 mg/day, while in the untreated group it rose from 105 to 166 mg/day. Seven of the 23 untreated patients progressed to overt nephropathy (protein excretion > 300 mg/day), but none of the 21 captopril-treated patients did. Although their study had low power (few events), the results after four years allowed the authors to conclude that captopril prevented progression of proteinuria in normotensive Type I diabetics. Marre et al44 earlier reached similar conclusions after 12 months of enalapril treatment in normotensive Type I diabetics.

The European Microalbuminuria Captopril Study Group recently concluded a two-year, randomized, double blind, placebo-controlled trial of 92 normotensive Europeans with Type I diabetes mellitus, microscopic proteinuria, and serum creatinine values <1.8.45 Patients from 12 centers were given either placebo or captopril (50 mg daily) and urine protein excretion and serum urea nitrogen concentrations were followed. In the captopril-treated group protein excretion fell from 52 to 41 mg/day, whereas in the placebo group it rose from 52 to more than 76 mg/day. Twelve placebo-treated patients but only four captopril-treated patients progressed to clinical proteinuria (defined as protein excretion of >288 mg/ day and a >29% rise from baseline). This study was well-designed and implemented, but did have a 17% dropout rate. Nevertheless, the authors concluded that captopril prevented progression of proteinuria during a two-year period in normotensive Type I diabetics.

Björk and colleagues⁴⁶ studied the protective effect of enalapril on GFR in 40 patients with Type I diabetes mellitus and slightly reduced renal function at three Swedish centers; 38 of the 40 patients were hypertensive. Patients were randomized to receive either metoprolol (mean dose = 144 mg daily) or enalapril(mean dose = 11 mg daily) and were followed for an average of 2.2 years. Enalapril-treated patients had less decline in GFR (from 46 to 42 mL/min) than did metoprolol-treated patients (from 48 to 37 mL/min). Urinary excretion of protein was reduced in the enalapril but not the metoprolol group. Blood pressure control was equivalent in both groups. This well-designed and implemented study unfortunately suffered from a high dropout rate. Seven patients from each group were withdrawn from the study, three from each group because of progression to ESRD. The authors concluded that enalapril prevented progression of proteinuria and slowed the fall in GFR over two years in hypertensive Type I diabetics. However, there was no change in the incidence of ESRD, possibly because of relatively small numbers and short follow-up.

Although the preceding studies show that ACEIs reduce proteinuria in normotensive and hypertensive Type I diabetics, the most important end-points—the need for dialysis or transplantation (kidney survival), and the quality of life, or longevity (patient survival)—were not measured. In addition, these relatively small studies probably did not have sufficient statistical power to detect small but perhaps clinically important differences in outcome.

The study that best addresses these concerns was a well-designed, multicenter, randomized, double blind, placebo-controlled trial of 409 normotensive and hypertensive Americans with Type I diabetes (mean age was 25 years) carried out by the Collaborative Study Group.47 At enrollment, patients had a protein excretion of 500 mg/day or more and a serum creatinine concentration of 2.5 mg/dL or less. About three-quarters of the patients were hypertensive. Patients, who were followed for three years with a very low dropout rate, were randomized to receive captopril (25 mg three times daily) or an indistinguishable placebo. Treatment with other ACEIs or CCBs was prohibited. They set welldescribed blood pressure goals (blood pressure to be <140/90 mm Hg; or, if entry systolic pressure was > 150 mm Hg, then a drop of 10 mm Hg to a pressure of <160 mm Hg). The outcome measures were creatinine clearance, urine protein excretion, death, or progression to ESRD (dialysis or kidney transplantation). The results showed that captopril: 1) reduced the incidence of death and ESRD by 50%; and 2) reduced the rate of decline of creatinine clearance (11% fall per year vs. 17% per year).

Somewhat surprisingly, the benefits were more pronounced in patients whose entry serum creatinine was 1.5 mg/dL or above. The benefits were clearly present in both hypertensive and normotensive patients. This study is extremely compelling, with convincing results and clinically relevant outcome measures. Its strengths include the three-year followup, measured (not estimated) creatinine clearances, events-based outcomes, multicenter involvement, and appropri-

ate statistical treatment. Its only notable weakness was the small number of African-American patients (5%-10%). In that respect, the results of all of the studies discussed here should be extrapolated with great caution to African, Mexican, and certain southwestern Native Americans, all of whom may have a special predisposition to aggressively progressive diabetic nephropathy. 48,49

ACE Inhibitors in Type II Diabetes

Studies of ACEIs in Type II diabetic nephropathy have lagged somewhat behind those in Type I diabetes, so definitive recommendations are more difficult. Several recent studies have begun to shed light on treatment of this 90% majority of diabetic patients. Ravid and colleagues⁵⁰ examined the long-term stabilizing effect of ACEIs on plasma creatinine and on proteinuria in normotensive Type II diabetic patients. They randomly allocated 94 normotensive Israelis with type II diabetes and microscopic proteinuria to receive enalapril or placebo for four years. Serum creatinine concentration and urine protein excretion were the main outcomes. The enalapril-treated group maintained protein excretion at an average of 100 mg/day over the four years, whereas the placebo-treated group had a rise in protein excretion from 100 to >300 mg/day. The reciprocal of serum creatinine concentration (a surrogate for creatinine clearance) was stable in the enalapril group, but fell 10% in controls. The study was well-designed and implemented, but suffers from the indirect measure of creatinine clearance, the small magnitude of change in serum creatinine values, and the lack of statistical correction for multiple comparisons. Nevertheless, this study provided the first solid evidence that ACEIs could retard the progression of proteinuria and the worsening of creatinine values in normotensive Type II diabetics.

LaCourcière and colleagues compared the effects of captopril (alone or combined with hydrochlorothiazide) with metoprolol (alone or with hydrochlorothiazide) in 74 Caucasian Type II diabetics with hypertension and normal creatinine values treated at a single center for three years.51 Treatment was titrated to achieve diastolic blood pressures of 85 mm Hg or less; all regimens were similarly effective. They found no effect on GFR or protein excretion in 53 nonproteinuric patients. But in patients with microscopic proteinuria at enrollment, protein excretion rose in eight of the 12 treated without captopril (from a mean 66 to 78 mg/day) and dropped in seven and remained unchanged in two of nine patents treated with captopril (from a mean 86 to 30 mg/day). Two of the 12 patients who did not receive captopril progressed to clinically significant proteinuria (> 288 mg/day). GFR did not change in either group. The authors concluded that captopril therapy could retard the progression of proteinuria in hypertensive Type II diabetics with normal creatinine values and microscopic proteinuria. They found no benefit in nonproteinuric patients, but their study was not sufficiently powerful to detect subtle differences, or differences that might appear over a longer course of time.

Lebovitz et al⁵² evaluated the renal protective effects of enalapril in a multicenter study of hypertensive patients with Type II diabetes mellitus and GFR between 30 and 100 mL/min/1.73 m.² In their three-year, prospective, double blind,

randomized, placebo-controlled trial of 121 patients they used GFR and urinary protein excretion as outcome measures. Patients were treated with enalapril or placebo with or without other antihypertensive agents (\alpha\- or \beta\-blocking agents, CCBs, diuretics). The results show that the rate of loss of GFR was greater in patients with overt proteinuria (> 300 mg/day) at baseline as compared to those with subclinical proteinuria (< 300 mg/day). There was a trend toward a slightly lower rate of decline in GFR in patients with overt proteinuria treated with enalapril rather than placebo, but this was not statistically significant. Enalapril-treated patients with subclinical proteinuria did have a significantly slower decline in GFR compared to the control group. Only 7% (two out of 30) of the enalapril-treated group developed overt proteinuria compared to 21% (eight out of 38) of the control group. The authors concluded that enalapril treatment of hypertensive Type II diabetics with minimal or early renal disease was renoprotective and provided benefits beyond blood pressure reduction.

Recommendations

The use of ACEIs to protect the diabetic kidney is well-founded in theory and has, in general, been supported by animal and

human studies. Most reported studies suffer the defects of relatively small numbers, treatment at a single center, and the use of either proteinuria or indirect measures of creatinine clearance as surrogates of renal function. However, two recent studies have included multiple centers, measured glomerular filtration rate, applied appropriate statistical rigor, incorporated double blind, placebo-controlled methodology, and used well-defined patient populations.47,52 Unfortunately, no study has looked at adequate numbers of African Americans, Mexicans, Native Americans, or other groups more likely than Caucasians to develop diabetic nephropathy.

Despite these cautionary statements, adequate information is available (Table 1) to support the use of ACEIs in normotensive and hypertensive Type I diabetics with established mild renal insufficiency (clinically significant proteinuria, mild decreases in glomerular filtration rate, or serum creatinine values between 1.5 and 2.5 mg/dL).⁴⁷ ACEIs are probably of benefit in normotensive patients with Type I diabetes and microscopic proteinuria. 43-46 The data accumulated to date, although less solid, support the use of ACEIs in normotensive and hypertensive Type II diabetics with normal renal function or microscopic proteinuria (< 300 mg/ day).50-52

One note of caution. The clinician

must be aware of, and be prepared to deal with, the predisposition of ACEIs to cause or worsen hyperkalemia in patients with renal insufficiency or type IV renal tubular acidosis-both of which are prevalent in the diabetic population. Moreover, ACEIs are rated pregnancy category D (potential teratogens), should be used with caution in diabetic women who may become pregnant.

Table 1. Clinical settings in which angiotensin converting enzyme inhibitors have been shown to produce measurable, long-term (one year or more) beneficial effects on renal function in diabetic patients.

Type of diabetes	Blood pressure	Proteinuria	Beneficial agent(s)		
Insulin-dependent (Type I)	Normotensive	Microscopic	Captopril* Enalapril Perindopril		
Insulin-dependent (Type I)	Hypertensive	Macroscopic	Captopril* Enalapril		
Non-insulin-dependent (Type II)	Normatensive	Microscopic	Enalapril		
Non-insulin-dependent (Type II)	Hypertensive	Microscopic	Enalapril* Captopril		
*Results were obtained from well-designed and implemented studies.					

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YOCON° YOHIMBINE HCI

Description: Yohimbine is a 3a-15a-20B-17a-hydroxy Yohimbine-16a-carboxylic acid methyl ester. The alkaloid is found in Rubaceae and related trees. Also in Rauwolfia Serpentina (L) Benth. Yohimbine is an indolalkylamine alkaloid with chemical similarity to reserpine. It is a crystalline powder, odorless. Each compressed tablet contains (1/12 gr.) 5.4 mg of Yohimbine Hydrochloride.

Action: Yohimbine blocks presynaptic alpha-2 adrenergic receptors. Its action on peripheral blood vessels resembles that of reserpine, though it is weaker and of short duration. Yohimbine's peripheral autonomic nervous system effect is to increase parasympathetic (cholinergic) and decrease sympathetic (adrenergic) activity. It is to be noted that in male sexual performance, erection is linked to cholinergic activity and to alpha-2 adrenergic blockade which may theoretically result in increased penile inflow, decreased penile outflow or both.

Yohimbine exerts a stimulating action on the mood and may increase anxiety. Such actions have not been adequately studied or related to dosage atthough they appear to require high doses of the drug. Yohimbine has a mild anti-diuretic action, probably via stimulation of hypothalmic centers and release of posterior pituitary hormone.

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Dosage and Administration: Experimental dosage reported in treatment of erectile impotence. ^{1,3,4} 1 tablet (5,4 mg) 3 times a day, to adult males taken orally. Occasional side effects reported with this dosage are nausea, dizziness or nervousness. In the event of side effects dosage to be reduced to ½ tablet 3 times a day, followed by gradual increases to 1 tablet 3 times a day. Reported therapy not more than 10 weeks. ³

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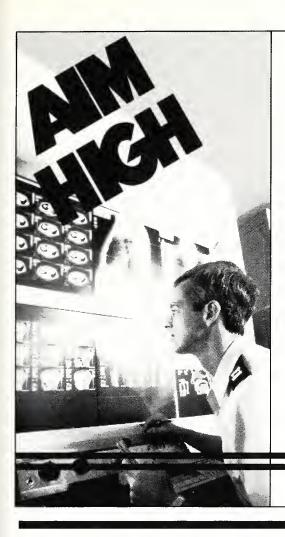
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"A Baby for Mary"

by Blaine Paxton Hall, PA-C

Now that Mary had finally delivered her baby, we were nervously wondering how she'd react the first time she saw it.

Mary's room was easily seen from the nurses' station; she was lying under a thick, slate-blue quilt that she'd drawn up under her arms. Her large hands were relaxed and folded across her chest. Mary's husband was seated beside her, his forearms resting on the bed's siderails. On the edge of his chair, he was leaning toward her, but she was gazing the other way, out toward us, watching the comings and goings at the semicircular counter. We busily avoided her gaze but she kept calling, "Are they bringing him soon?"

We thought Dr. Childs, the pediatrician, was stalling. There was even some talk that the doctors wouldn't let her see the baby. And we wondered how she'd react to that because she'd been asking to hold the baby ever since the cesarean section, first thing this morning.

Mary had known for nearly three months that she was carrying a physically and mentally defective baby. At 16 weeks, Dr. Richie, the obstetrician, had scanned Mary's abdomen by ultrasound to confirm gestational age. Quite unexpectedly, he'd noticed enlargement of the fetal kidneys. And knowing that hydronephrosis was part of the syndrome of several types of chromosomal abnormalities, Dr. Richie had whisked Mary and her husband off to a geneticist.

Dr. Harrington had recommended amniocentesis, the procedure by which the cells of the amniotic fluid (and, therefore, the cells of the fetus, are examined). Soon thereafter, Dr. Harrington, a tall, slender man in a brown tweed suit, met Mary and her husband at the door of his wood-paneled office. A medical student accompanied Mary and her husband to Dr. Harrington's—for the learning experience, which he'd shared with us later:

Mr. Hall is a physician's assistant in general internal medicine at the Pinehurst Medical Clinic in Pinehurst. "Mr. and Mrs. Tanner. Please. Please come in." Dr. Harrington gestured toward a cavernous leather couch, then moved gracefully to the wing-back chair alongside his impressive oak desk. Elegantly occupying the chair, he peered intently at them and began slowly, smoothing his bearded chin with his palm. "The results show that your baby has Trisomy 13."

Mary and her husband looked blankly at each other and then back at Dr. Harrington. He continued pensively. "Trisomy 13 is, as we say, a chromosomal abnormality. You see, within every single cell in your body are 23 pairs of chromosomes. Chromosomes contain exact and specific instructions for the development of the fetus. If there is anything wrong with any of the chromosomes; if there is any misinformation, that will be replicated in every cell of the body."

Mary and her husband sat quietly on the couch.

"Now Mary, the 13th pair in every cell of your baby has one extra chromosome. And that's how we get the name Trisomy 13; 'tri-' means three and '-somy' from the word chromosome."

Mary's husband leaned forward. "Did this come from us?"

"No, this kind of thing occurs quite by chance. There is nothing that either of you have done that could either cause or prevent your baby from having Trisomy 13. Remember the blood tests that we did on both of you? They were normal; there is nothing wrong with your chromosomes. Either of you.

"Women who become pregnant at an older age, especially with their first pregnancy, seem to be at greater risk for this kind of thing. You're 32, right? But you already have a little girl."

Mary nodded. "Yes, Emily, she's three years old."

It was getting late in the day. The room had darkened. "I was wondering, Dr. Harrington, how long will my baby live?"

Dr. Harrington crossed his legs. "A fetus with Trisomy 13 will have severe mental retardation, physical disfigurement, and physiological dysfunctioning of organs and systems critical to life. We would expect the death of the baby to be imminent."

"But how long can my baby live?"

"Not very long. Not very long at all."

In the silent pause the room grew darker. Dr. Harrington slowly went on. "Mary, have you decided what you might do?" He glanced furtively at Mary's husband.

"I'm not going to do anything. I'm going to have the baby."

None of us knew for sure how she felt or the reasons for her decision. Over the weeks, while we anticipated the birth of Mary's baby, her situation gave us much to discuss and even more to think about. At lunch the other day, we had an especially enlivened discussion about Mary's decision to not terminate the pregnancy.

"I'll tell ya; I just don't see how she can go on like this. It would drive me nuts."

"It is driving you nuts."

"Well what's she trying to prove anyway? I think she's selfish to drag her family and everyone else through this trip."

"Maybe she's a religious fanatic."

"Well, it's her personal decision to make. It's not ours. Not the government's. Not anyone else's business."

"But don't you think we—all of society—have a moral and social interest in women having abortions?"

"Yes, maybe so. But we should use reasoning, or even peer pressure, not laws, to regulate abortions."

"Well, Mary's in her third trimester now. The only way she could legally have an abortion now would be if her health's in danger."

"You could always find a doctor willing to say that. Gimme the salt there would va?"

"Well, that's the way I think it should be."

"Think what should be?"

"No abortions after the first trimester, unless the mother's health's in danger. She should be able to make up her mind by then. Come on. Let's get real. We got to have some standards in life, for Chrissake."

"Well, maybe she could make up her mind but, ya know, I really think abortion should only be legal in the case of rape or incest—beyond the mother's health in danger, of course."

"You're on a slippery slope with that, ya know. Is a life less significant because the mother's health is in danger or because she was raped? Should the right of the fetus to live be dependent on the circumstances of conception? Is that justice? The life is no less significant because it was conceived as a result of rape; that's what I say."

"And people are just using abortion as another means of birth control. Even the pro-choice people will agree with that."

"If that's what you really believe, why aren't you passing out birth control pills—or educating about condom use?"

"Well abortion's murder and that's that."

"You know, murder is an awfully strong word. If you have a murder, then you must have a murderer. So who is the murderer? The physician? The mother? I suppose you'd recommend capital punishment for a woman who terminates her pregnancy. Ha! Now doesn't *that* make sense?"

"Well, by the end of the fourth week the heart starts to beat. You can see it later by sonography. By the seventh month the lungs are developed. By the end of the eighth week, the baby shows response to stimuli." "Listen, that's all true to varying extent with all animals. But we slaughter animals. Do you eat meat? So far, murder only refers to humans. Beating hearts, respiration, and reflexes do not make us uniquely human."

"Well then, just when are we uniquely human?"

"When we begin to think. That's what I say."

"Yah? Well, let's begin to think about getting out of here. Time to get back. Let's go."

Mary was first on the surgery schedule this morning. When they wheeled her into the operating room, she was talking with us, asking questions, attentive to all our preparatory activities.

When the anesthesiologist wanted to insert the catheter into her lumbar spine, she sat up for him, legs dangling over the side, three feet from the floor. And though hugely pregnant, she doubled over to facilitate his probing with the needle.

After we returned her to supine position, one nurse began the systematic prep of Mary's skin for surgery. She shaved Mary's taut belly, dabbing away the stubble with adhesive tape. Then, with a sponge on a flat wooden stick, she scrubbed her stomach with foamy orange iodine solution.

We all knew Dr. Richie and his pre-surgical word of prayer with each patient. He'd long since given us explicit instructions to not begin prepping the patient until he'd met with her for prayer. He always did this in the pre-op holding area, just before changing into his surgical scrubs. This morning we waited for Dr. Richie, but he could not be found.

"Oh, ya know, this praying stuff of his is a bunch of baloney," said one of the transport techs.

A couple of the nurses looked horrified.

"Oh come on," continued the muscular fellow, lounging against the counter. "It's a public relations ploy. See, the patient's family always waits with her in the pre-op holding area. He just puts on an act for them."

"Ya know, I read an article where they did a study that showed how patients who'd been prayed for had better recovery rates than those who had not been prayed for."

"It's not the prayer that heals a patient, it's their belief that it will."

"No but ya see, they had two groups of patients. One group was prayed for by clergy and laypeople outside of the hospital, and the other group was not prayed for. None of the patients knew who was being prayed for, neither did the attending physicians or nurses. And it actually turned out that the patients who were prayed for—even when they didn't know it—had better recovery rates. So how do you explain that?"

"I don't explain it because I think it's baloney."

Someone went looking for Dr. Richie and reported back that he was in the men's room and that we should go ahead with prepping Mary for surgery. We sensed that Dr. Richie wished to discreetly avoid the praying ritual with this patient.

Soon, Dr. Richie, his assistant, and the medical student approached. We knew he was a medical student because we had seen him earlier, on the wards, and he was wearing the blazer-cut, white jacket instead of the longer length, butcher-cut style. The three of them backed into the room, carrying their arms away from their bodies, at right angles, pointing up. Water ran off their elbows; they had just come from the scrub sinks around the corner.

So the three stood waiting for the scrub nurse to assist them. She was standing behind a table laden with long stainless steel tools and bowls and blue linens. She finally selected three blue towels and handed one to each of them.

The table and all that was part of the so-called sterile field was draped in faded blue linen. The blue was the color of the mountains which, though there were no windows in or near the operating room, were serenely reposing outside, all around us. It was a reassuring blue; it hushed the glaring overhead lights. The effect was an aura, to those of us standing back, in which blurry blue figures floated within the sterile field.

Holding their arms away from their bodies, the three dried their hands, starting with their fingers, then moving toward the elbow, never retracing their steps, one arm at a time, one side of the towel for each arm; all the while taking obvious care not to touch their unsterile green scrubs or anything else. Next, to each in turn, the scrub nurse proffered a blue paper gown, holding it full length in front of each, taking great care not to touch the inside of the gown. The surgeon carefully aimed his arms into each sleeve. The nurse held open a surgical glove, into which the right hand was thrust with a flourish. Then the surgeon used his gloved right hand to assist the nurse in gloving his left hand.

A circulating nurse came behind each in turn, pulling the gowns together and fastening them at the nape of the neck. The final act of the ritual was to tie the gown around the waist. The ties were affixed to the gown, and a thin cardboard marker was attached to the end of one of the ties. Dr. Richie picked the cardboard marker, held in place by light adhesive, off the front of his gown and handed it to the nurse waiting to receive it. She held it as he pirouetted to his right. Back at the starting place facing her, the gown was now belted. He tugged on the tie, and she on the cardboard, breaking the attachment. Then she pitched the cardboard piece into the big red trash barrel. Now, he took the left side tie, which was shorter and also affixed to the paper gown, and tied it to the longer tie held in his right hand.

We'd seen this glove and gowning dance countless times before and with many other surgeons, always the same. One time we overhead the student and Dr. Richie bantering at the scrub sinks. The student said that the scrubbing and gowning was like the ablutions, the symbolic garments, the priestly ritualisms of the clergy, in which he had also participated. "Oh yes," he had said with mock seriousness, "I understand you've

got to do all this stuff just right, or else it won't take."

Dr. Richie and the scrub nurse fully draped the patient in blue paper, leaving her abdomen exposed. They hung a vertical drape that separated Mary's upper body from her lower. The anesthetist, surrounded by his monitoring equipment and cart of medications, sat at her head. The spinal block effectively denervated Mary from the waist down. She was fully conscious and alert; she curiously watched everything we did. At one point she looked up over her right shoulder at one of the monitors and remarked flatly, "Isn't my systolic number a little low?"

Dr. Richie took his place on Mary's left side, the student on his left. The assistant surgeon stood on Mary's right, the scrub nurse to his right. The scrub nurse began by pulling the blue draped tables in snug around them, closing the sterile field. Using Mary's draped body as a working table, they assembled plastic tubes and cords, attaching them with clamps at the right place on the blue drape. The circulating nurses moved equipment into place, delivering various surgical paraphernalia to those ensconced within the sterile field.

Dr. Childs was stationed at the incubator across the room, ready to receive the infant. He had a stethoscope with a miniature chestpiece in his hand and a small plastic tube, attached to the wall, from which oxygen was to be delivered to the infant.

* * *

At Mary's last office visit, Dr. Richie had her sign the Do Not Resuscitate orders. Mary had been perched on the end of the examining table, and Dr. Richie sat with his back to her, face in her chart, pen poised ready to check the appropriate boxes. He had read with a galloping voice, "Okay now, do you want cardiac or pulmonary resuscitation, intubation, ventilation, tube feedings, IVs, antibiotics, or anything else for this baby?"

When there was no response, Dr. Richie wheeled around to face her. Mary's face was contorted and wet with tears. "I don't know," she choked, "I just don't know." That was the only time any of us had ever seen Mary break down.

* * *

Now, amid all the busy activity, the circulating nurse chose the precise moment to announce, "Okay, we're ready for the father." Seconds later, the door opened and a stiffly moving figure in a white paper suit, masked and hatted like the rest of us, was ushered in by an operating room attendant.

"All right now," continued the circulating nurse as the crackling figure edged toward her, "hold your hands together and don't touch anything blue." She sat him on a stool at Mary's left shoulder, behind the blue drape.

Without fanfare or even a word to make ready, Dr. Richie moved his hand in one quick, continuous stroke across Mary's lower abdomen. A panel of yellow, grapefruit-like flesh, Mary's flesh, flashed up behind his hand. The room was uncharacteristically quiet. In a stroking motion, using electrocautery, Dr. Richie cut through the next layer, exposing bright red, lean muscle tissue.

It was Mary who broke the silence when she remarked dispassionately, "I can smell my flesh burning." We all looked around to see who would say what next.

But Dr. Richie continued, deep in concentration, with no sign of having heard Mary's comment. He seemed to not perceive anything outside of his foot-square sterile field. The anesthesiologist mumbled something to Mary about the burning being done to stop any bleeding. Mary was easily appeared.

In a few moments we saw the shiny, swampy green placenta bulge into the clean-cut, red wound. Dr. Richie punctured the membrane and then, as always, things happened fast. The waters gushed from the wide wound; a gloved hand moved into the sterile field with a plastic suction tube; the blue drape was completely soaked in amniotic and bloody fluid.

Dr. Richie's arm slipped inside Mary's wound up to his left elbow, palpating and moving the baby into position. Mary's abdomen shifted uncannily under the blue drapes. Soon he brought forth a wet head with dark, coarse, matted hair. He grabbed a palm-sized suction bulb and began to aspirate fluid from the nostrils and mouth.

We all waited for the expected triumphal cry, but the grayish-blue head remained silent, facing the ceiling, suspended from Mary's wound, between birth and spontaneous life, as Dr. Richie worked and worked with the bulb.

After a long, quiet minute or so, unable to elicit the expected cry, he gently eased out a shoulder. The rest of the infant easily popped out and delivery was complete in seconds.

Mary's hair covering had not stayed in place; dark coils of damp hair framed her face. Again it was Mary who broke the silence, "Is it here yet?"

Dr. Richie answered with reserve, "Yes, Mary, it's a boy." The baby cradled between Mary's thighs, Dr. Richie and his assistant coaxed the delivery of the placenta by gently tugging on the cord. Within the murky placenta, the thick, gnarled cord was a surprisingly brilliant blue; like finding sapphires in a muddy creek.

The infant was still silent, although his arms flailed. Dr. Richie and the assistant placed a clamp on the cord five inches from the infant's abdomen and another clamp several inches beyond that. The assistant cut the cord between the clamps. The placenta was inspected for abnormalities or missing segments, then it and the cord were scooped into a steel bowl on the bluedraped sterile table. By this time, the cord was already grey.

As soon as the baby was disconnected from Mary, Dr. Richie carried it to Dr. Childs, waiting at the incubator. Then he returned to Mary, to close her womb and abdomen with layers of sutures.

Dr. Childs busied himself with examining the baby. He continued the suctioning of the baby's nostrils and mouth while one of us waved the oxygen tube under the infant's nose. Dr. Childs addressed Mary across the room. "This baby is not breathing; but his heart is beating. I don't know, I just don't know. I don't think he's going to make it."

Mary spoke from behind the blue drape, "I want to hold him. Please just let me hold him."

Dr. Childs sighed and said, "Mary, you remember we said the baby would have physical deformities?" After a silence he went on, "Mary the baby's face is severely disfigured and..."

"That's okay, I want to hold him," interrupted Mary gently.

Dr. Childs solemnly wrapped the baby, covering his body except the head. Atop his head he fitted a blue knit cap, pulling it down over the baby's forehead and ears. In this way, the bundle looked like a typical newborn baby boy. Then Dr. Childs started his anguished walk to Mary across the room. "Mary," he said, "I can't let you hold the baby now because he still isn't breathing and we need to keep giving him oxygen and we need to keep him in the warmer."

Mary got a glimpse of her baby as Dr. Childs stood momentarily beside her. She looked curious and concerned but somewhat distant. Dr. Childs turned and quickly left the room, saying on his way that he was taking the baby upstairs, to the nursery. Dr. Richie and his assistant, still suturing, hadn't averted their eyes from their work and talked to each other only infrequently and in low tones.

Mary's husband had sat quietly on his stool throughout. His masked face emphasized his eyes which, though red and swollen, were dark with pain, a picture of mental suffering that we thought uncharacteristic and unexpected in so young a man. Without a word to Mary, he abruptly got up, shuffled across the room and out the door. His eyes never left the floor.

The surgeons finished their suturing. Dr. Richie peered around the drape and said soberly, "Mary, you did real good."

The three then ripped off their paper gowns and gloves, rolled them up and stuffed them into the trash barrel. "I'll be going to the Board meeting during lunch," said Dr. Richie.

"I think I need to go running," replied the student. They left the room and us with Mary.

Upstairs in the nursery, the baby had begun spontaneous breathing. He was crying—a low, pitiful bleating noise. Dr. Childs paced and sighed and shook his head and saying, "I don't know, I don't know, I just don't think he's going to make it."

The assistant surgeon, a silvery, distinguished-looking man, now dressed smartly in a suit, glanced at the infant. "I'll tellya," he mumbled seriously, shaking his head, "I pray to God that he'll die. That would be the best thing for everyone."

Oxygen was delivered to the infant by the tube connected

to the wall and to what looked like a fish bowl, cut vertically in half and placed upside down, directly over the infant's head. The crying was muffled by the bowl, and the baby, now crying with much effort, his swollen sides heaving, kept catching his deformed mouth on the edge of the oxygen bowl.

The student peered at the baby inquisitively. He fingered the hands and the blue feet; all contained extra digits. The nurse in charge, a grey haired, steel-jawed woman noticed the student and went to stand by him, also watching. After a few moments, she spat out, "Cleft lips, cleft palate, omphalocele, no testes but the rectum is patent."

"Yes, but he's crying," said the student quietly, his eyes never leaving the baby.

At the same time, there were three migrant babies in the nursery. We called them migrant babies because their parents were migrant workers and stayed at the nearby camp. Two pink caps and one blue. All had dark eyes that glistened in the bright nursery lights, shiny black hair, and creamy tawny skin.

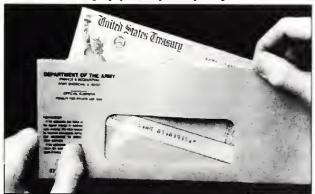
It was to this group that Mary's husband, still with the red beseeching eyes, came. He stood timidly in the doorway of the nursery, imploring a roomful of strangers. "Please let us hold the baby. Mary wants to hold the baby. Dr. Childs said we could. Please."

And this is why we all were wondering just how she'd react when finally the baby was brought to her. This would be the last time that Mary, still watching the nurses' station would ask, "Are they bringing him soon?" A nurse appeared from around the corner with the baby in her arms. She approached Mary's room cautiously.

Mary's eyes were riveted to her baby's face even though he had no eyes with which to return her gaze. She accepted the blue blanketed bundle, now quiet in his blue cap. She pulled her baby in to herself and raised him to her face. She kissed the baby's grotesque mouth and said, "I love you little baby boy of mine."

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continued from page 371

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Medge Denise Owen-Kummer (AN), Bowman Gray School of Medicine, Medical Center Blvd. Winston-Salem 27157

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Gaston

Mikell Jenkins Jarratt (IM), 171 Ashley Ave., Charleston, SC 29425

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Frank T. Lake, Jr. (RES), 1630 Garden Terrace Drive, Charlotte 28203

Kevin Patrick Spencer (RES), 3831 #8 Cornerwood Lane, Charlotte 28207 Bradley Kent Weisner (U), Charlotte Urology Group, 1900 Randolph Road, Ste. 216, Charlotte 28207

Christopher Davis Williams (RES), 1301 Bywood Lane, Charlotte 28209

New Hanover-Pender

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William John McLeod (OBG), 522 S. Van Buren Road, Eden 27288

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Daniel James Albright (ORS), 3515 Glenwood Ave., Raleigh 27612

Richard Edward Carlino (PS), 3404 Wake Forest Road, Ste. 200, Raleigh 27609

Aphorisms of the Month

Daniel J. Sexton, MD, Editor

Quips from Curmudgeons*

A cult is a religion with no political power.

—Thomas Wolfe

The infliction of cruelty with a good conscience is a delight to moralists—that is why they invented hell.

—Bertrand Russell

Equality may perhaps be a right, but no power on earth can ever turn it into a fact.

—Honoré de Balzac

Moral indignation is jealousy with a halo.

—II.G. Wells

The civilized are those who get more out of life than the uncivilized, and for this the uncivilized have never forgiven them.

—Cyril Connolly

Convictions are more dangerous enemies of truth than lies.

-Freidrich Nietzche

The only completely consistent people are the dead.

—Aldous Huxley

There is only one way to find out if a man is honest; ask him; if he says yes, you know he is crooked.

---Mark Twain

* from Winokur, EJ. The Portable Curmudgeon. Plume, 1987.

Send aphorisms, typed and double-spaced, to: Daniel J. Sexton, MD Box 3605, DUMC, Durham, NC 27710, or fax them to: 919/684-8358

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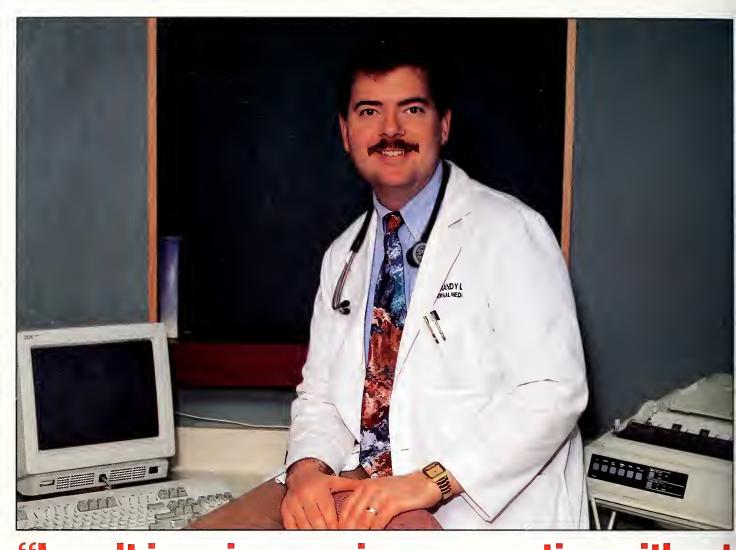
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North Carolina Medical Journal

For Doctors and their Patients

SPECIAL ISSUE



Hidden Plague:

Violence at Home

Assad Meymandi, MD, Guest Editor

Let's Dispense with the NONSENSE The Patient Comes First!

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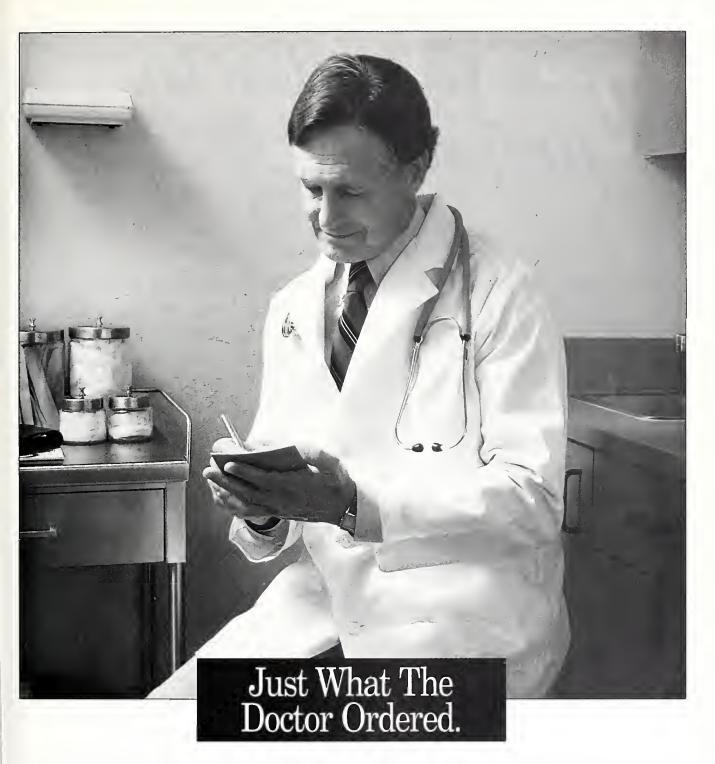
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North Carolina Medical Journal

FOR DOCTORS AND THEIR PATIENTS

Contents / September 1994, Volume 55, Number 9

On the Cover: George Cruikshank's etching ("Fearful Quarrels and Brutal Violence are the Natural Consequences of the Frequent Use of the Bottle"—Plate VI from the series, "The Bottle" 1847), signifies the prevalence of domestic violence throughout history. Used with permission of the Yale Center for British Art, Paul Mellon Collection, New Haven, Connecticut.

SPECIAL ISSUE Hidden Plague: Violence at Home

New Members

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Aphorisms of the Month

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Yohimbine exerts a stimulating action on the mood and may increase anxiety. Such actions have not been adequately studied or related to dosage although they appear to require high doses of the drug. Yohimbine has a mild arti-diuretic action, probably via stimulation of hypothalmic centers and release of posterior pituitary hormone.

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—Constitution and Bylaws of the North Carolina Medical Society. Chap. IV, Section 3, pg. 4.

NORTH CAROLINA MEDICAL JOURNAL

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The Vocabulary of Violence

Assad Meymandi, MD

"Ethics is the name we give to our concern for good behavior.

We feel an obligation to consider not only our own personal well-being, but also that of others and of human society as a whole."

—Albert Schweitzer

September celebrates Women's Health month. I use the word celebrate to emphasize cerebration: awareness and heightened consciousness of issues related to women's health. One area that needs cerebration is the area of family and domestic violence. The articles in this special issue—many of which were written by members of the North Carolina Medical Society's Domestic Violence Task Force—explore this topic.

America and Violence

Violence is epidemic in America. As a nation, we seem to love violence. I came to this country as an 18-year-old student. I was amazed and amused by the violent words used in casual daily conversation: "I was so mad, I could have killed him..." or "That joke was so funny it killed me...." Fathers exhorted and continue to exhort their sons on the football field: "Hit him, tackle him, kill him...." Forty years later, I am still amazed but not amused—the vocabulary of violence is a large part of the fabric of our language. We speak violence, see violence, breathe violence—and seem to love it. Television programs and commercials show an act of violence or use a spoken word of violence every 15 seconds. Violence sells tennis shoes, beer, popcorn, and even diapers (soft diapers help baby boys grow into tough hard hitting linebackers...).

Experts say that there are two to four million assaults on women in this country yearly, the same as the number of pregnancies. The National Rifle Association has the largest lobby in Congress; movies about extermination and mass murders, the biggest earnings; boxing, the largest purse in sports.

In 1994, the Justice Department found that murders within families account for 16%—one-sixth—of urban slayings. Their

Dr. Meymandi, guest editor of this special issue, is a psychiatrist practicing in Raleigh and chairs the North Carolina Medical Society's Domestic Violence Task Force.

study, the first to focus on murder within families, revealed the pervasive nature of family violence. Among whites murdered by their spouses, 62% were husbands; among blacks, 53% were wives. Killing of children by parents was the second-most frequent type of family murder, accounting for 21% of deaths.

As a medical student and as an intern, I saw victims of shootings, beatings, and maimings—always committed by a "friend." The victims never filed a complaint. I do not recall ever having heard a lecture on family and domestic violence. The nation has done well regarding child abuse, but for domestic violence it lags behind. The need for action is obvious.

Domestic Violence in America: A Matter of Public Health

The literature on family and domestic violence frames the question: is domestic violence a phenomenon, or is it part of a larger epidemic of violence that will have to be attacked on multiple fronts? Attorney General Reno says there is a connection: "Unless we end violence in the home we are never going to end violence in the streets." The blaze of violence consists of many fires, all related. Some, like child abuse, have been better controlled; others, like spouse abuse, continue to rage.

The Centers for Disease Control and Prevention has formally designated domestic violence as a public health issue. The AMA has not been a silent partner. A series of epochal papers in *JAMA* in 199I-1993 addressed the incidence of violence against women. Twenty years of data indicate that physical and sexual violence against women is an enormous problem. Much violence is perpetrated by women's intimate partners or in relationships presumed to carry some protective aura (father-daughter, boyfriend-girlfriend). This violence produces both short- and long-term sequelae that affect the physical, psychological, and sociological well-being of victims.

Violence against women brings them into regular contact

with physicians; more than one in five women seen in emergency departments have symptoms relating to abuse. Physicians often treat the injuries without recognizing the underlying abuse or, if they do recognize it, they may not know of resources to address the needs of abused women.

North Carolina Efforts

In her 1993 presidential address to the Medical Society, Dr. Elizabeth Kanof proclaimed domestic violence a top priority. She appointed me chair of a task force to "work closely with the legal profession, public health officials, the Alliance, and those civic organizations that see violence as a public health issue...." The Task Force found that our state has very few solid and dependable laws to protect the victims of domestic violence. The laws enacted in 1991 and 1993 are, at best, rudimentary and inadequate.

Last May the Medical Society, the Healthy Start Foundation, the NC Academy of Trial Lawyers, the NC Coalition Against Domestic Violence, and the UNC Injury Prevention Research Center sponsored a symposium at NC State University titled, "End Violence Against Women—Integrating the Health and Legal Communities." Co-sponsors included the NC Nurses Association, the Medical Society Alliance, and 23 other institutions and organizations. The Governor, the Attorney General, academicians, panelists, and speakers participated.

The symposium was most productive, but I saw few men in attendance. One may argue that the lack of male involvement in the problem of domestic violence is a product of unconscious gender polarization. But violence is not a male issue. It is not a female issue. It is everybody's issue. It appears to me, as a word lover and amateur etymologist, the term *domestic* may give violence a somewhat benign, private, almost acceptable flavor. Violence is a crime and its perpetrators should be punished.

The Task Force will continue its cooperative efforts with other agencies to develop a broader understanding of the epistemology of violence, suggesting more exact language, semantics, and technical words to reflect the malignancy and invasiveness of violence. The Task Force is focusing on two key areas: 1) Recommendations for curricular change in medical schools and residencies. Work on the "language of violence" has led to a proposal that the committee develop a textbook on the subject. We have textbooks on medicine, surgery, and other medical disciplines. Why not a textbook on family and domestic violence? 2) Forging legislative initiative for enactment by the General Assembly. It is hoped that our model legislation may be adopted by other states struggling with this issue.

A Special Issue of the Journal

- Deborah Jamieson, a nurse and a victim of domestic violence, writes a dramatic first-person account as prologue.
- Drs. Karen Bash and Fred Jones offer an overview of the problem of domestic violence, its scope and prevalence.
- Drs. Paige Hall Smith and David Gittelman draw on their academic and clinical experience to examine the psychological consequences of battering and its specific implications for the health of women and medical practice. This paper helps establish the public health understanding of battering and the need for appropriate diagnosis.
- Dr. David Gremillion and GiGi Evins discuss why physicians are so lax



Dr. Meymandi

about sharpening their clinical skills in diagnosis and management of battering.

- Kathy Hodges presents guidelines for using community and referral support systems. She also compiled the Health Watch directory of resources for use by patients/victims.
- Dr. Mary O'Brien elaborates on the much neglected area of elder abuse.
- Dr. John Butts offers a tutorial guide to describing and documenting the injuries of battered victims.
- Dr. Robert McAfee, AMA president, describes the economics of violence and tallies the enormous health care dollars wasted on a preventable behavior. The cost of medical care for victims of domestic and family violence is staggering.
- Wanda G. Bryant and Sondra Panico offer a legal perspective on the responsibilities of practitioners.
- Congressman David Price and Tonya Robinson examine the role of Congress and possible future federal legislation on domestic violence.
- Drs. Desmond Runyan and Gail Brown examine the impact of domestic violence on children.

The Task Force has established as its priority to inform, educate, and reveal its findings to North Carolina practicing physicians and their patients. Therefore, we dedicate this special issue to the victims of family violence and their physicians.

I thank Drs. Gremillion, Hall Smith, and the other members of the editorial group. I also thank Lisa Jernigan, Assistant Director, Business Services, North Carolina Medical Society, for her help and enthusiasm and indefatigable stamina.



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"My Story"

by Deborah M. Jamieson, RN, BSN

Editor's note: The following account was adapted from Ms. Jamieson's speech during the conference "End Violence Against Women: Integrating the Health and Legal Communities," held May 23 at NC State University's McKimmon Center in Raleigh.

My cries for help went unanswered. I knew my neighbors had seen my husband pulling me from our car by the hair, dragging me across the yard into the house. They heard my screams for help. They saw my husband strike me in the head and face repeatedly. Maybe they did not want to get involved—or thought it was none of their business. I prayed that help would come during the next long, devastating hours. The phones had been ripped out of the wall, the furniture destroyed.

How did the violence escalate to this point? I had been married for more than five years and during that time I had denied that I was a victim. My husband was an alcoholic. I encouraged him to seek help through Alcoholics Anonymous, and the violence did abate—until the next crisis. Our financial problems or his problems at work seemed to ignite his anger, drinking, and violence at home.

During our marriage I was beaten, choked, bitten, humiliated in public, and terrified. While pregnant I was hit in the abdomen, kicked in the back, and thrown to the floor. My first child was born one month premature; I was hospitalized three times during my second pregnancy for pre-term labor. I became so depressed that at times I wished that I would die just so that I would not have to suffer the pain and degradation of the beatings anymore. Only my love for my two children kept me going, hoping for a better life for us. I was isolated from family and friends. My husband dictated and controlled everything I did or was "allowed" to do. He threatened to kill me or kidnap my son if I left.

My husband once held a knife to my throat while he described graphically how he planned to kill me. The fear of leaving was so great that I felt paralyzed, afraid to think of leaving. I found out later that this pattern of control and violence ran through his family. (I found out, too, that women whose father-in-law is violent are three times more likely to be assaulted by their partner.)

Ms. Jamieson is on staff at the Valley Surgical Clinic in Fayetteville.

Why did I stay? At times our marriage seemed happy. I felt fulfilled as a mother. My husband would beg for forgiveness and seem remorseful after the abuse, promising that it would never happen again. I desperately wanted to be a good wife and mother and felt pressured to keep our family together. I was ashamed of the beatings. I did not want to reveal to anyone the real terror I often experienced.

I did try to seek help. I went to the Red Cross, to counselors, to the police. I was very frustrated in my efforts. I was told that unless I pressed charges the police could not help me. When I finally summoned up the courage to press charges, I was interrogated for hours and asked if I realized that my action could result in my husband losing his job. I became more frightened and felt guilty. My confidence in the protection the police could offer decreased.

Finally the violence exploded. I knew that my life would be taken by my husband, and I was terrified that if he killed me he would also kill my children. I locked my six-month-old baby in her room and attempted to lock my two-year-old son in his. I endured hours of beatings and acts of torture. I wished it was a stranger attacking me, not my husband. He was so out of control that I no longer recognized him. My blood flew everywhere, even down the hallway wall. The police never came.

I eventually escaped, taking my two small children and the clothes on my back. I had no car, no home, no checking account, no money. My family lived far away and I was afraid to get them involved. The local shelter was full. I was fortunate to have friends who agreed to take us in temporarily.

I went to Social Services and waited for more than seven hours with my two children. After filling out a mountain of paperwork I was allowed to see a social worker. She asked if I was a full-time student. I explained that I was in my first quarter of college and that I was taking full-time classes in premedicine. She told me that I could receive no benefits, that "If you can go to school full-time you can work full-time." I left, devastated.

I ended up working two jobs and staying in school. I wore black turtlenecks for two weeks to hide my bruises. I went to the courthouse to obtain a restraining order. They said I needed proof that I was in danger and money for the fee. I left without getting the order. I sought the advice of attorneys and was told that I had a complex legal case and the fee would be up to \$150

per hour. I was also told that I should have pressed charges, gone to a doctor or the emergency room, and have gotten a restraining order. My husband wanted to make things as difficult as possible for me in an effort to force me to come back. He refused to agree to a divorce and stalked me at home and at work. He was finally arrested trying to kick in my front door, but was later released.

Despite my obstacles I eventually earned a Bachelor of Science degree in Nursing. I also got the restraining order and custody of my children. Now my children and I lead a quiet,

peaceful life. I did this myself, without the benefit of an attorney. I felt re-victimized by the legal and judicial system.

I hope that the medical community will advocate reforming current legislation in areas of marital abuse. There is a great need to expand the services currently available to victims of domestic violence, such as providing referral to a "client-

advocate" trained in the dy-

namics of domestic violence as part of emergency room treatment. We need to improve the education of health professionals so that all of us will know the signs and symptoms of domestic violence and how we, as providers, can help. We also need a domestic violence registry where cases can be reported confidentially. We, as members of the

medical community, need to voice our message to society: Domestic violence is not normal nor is it acceptable. We must lead the way in removing this devastating obstacle to the health of our community. Together we can make a difference.

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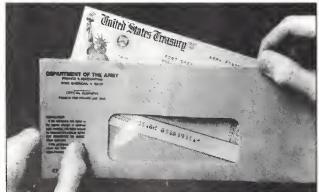
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Domestic Violence

The Challenge for Public Policy

Rep. David E. Price and Tonya T. Robinson

Our American way of life is severely threatened by the increasing level of violence in our society. School playgrounds have become battlefields; joggers are slain in the streets; families are destroyed as conflicts escalate into abuse and violence.

North Carolina has not escaped this unfortunate trend. The rate of reported violent crime in our state has increased 54% since 1984, the fifth highest rate of increase in the country. Unlike abstract statistics that might escape the notice of the average citizen, crime figures are not lost on any of us. They point to human suffering and loss that are all too real; they threaten our families and neighborhoods, in some instances paralyzing us with fear.

Extraordinary monetary and human costs are attached to violence. Beyond bruises, black eyes, and head injuries, we are faced with cases of substance abuse, depression, suicide, and homicide. Violence divides families, aggravates poverty, increases the need and cost of social services, and, not least of all, multiplies health care costs. Lifetime costs—not counting broader social and governmental costs—to violent crime victims in the US now exceed \$178 billion annually.

A sometimes neglected aspect of the debate has been that of violence directed toward women. According to NC Equity, on a typical day in North Carolina, 100 women are victims of rape or attempted rape, 160 women are attacked or assaulted, and 50 elderly and disabled adult women are abused. Polls consistently show that women perceive themselves to be especially vulnerable to such attacks; yet, until recently, public policy did not fully recognize the legitimacy of this fear. In this paper we pay special attention to violence against women—especially domestic violence—and highlight recent policy initiatives aimed at preventing such abuse.

Congressman Price represents the 4th Congressional District of NC. Ms. Robinson is his legislative aide for health affairs. Their address is 2458 Rayburn Building, Washington, DC 20515.

Domestic Violence: An Overview

Contrary to popular belief, the most unsafe places for women are not dark alleys or abandoned parking lots. Nor are women at greatest threat from strangers. Rather, they are assaulted by people they know—in 1991, 85% of the women attacked in North Carolina knew their assailants—and often the attack occurs in the home.² The AMA estimates that four million women are battered by their male partners each year, and one woman in four is likely to be abused by a partner in her lifetime.³ Because most victims do not report such violence to the police and rarely use domestic violence or rape crisis programs, these statistics are probably underestimates.

Although the data measuring domestic battery are insufficient to reveal the full extent of the problem, the prevalence of spouse/partner abuse is unquestionable and the damage widespread. Physical and sexual abuse have received the most attention from researchers and the media, but the scars run even deeper. Batterers intimidate and humiliate women, isolate them from their family and friends, restrict their access to financial resources, and threaten the safety of their children. Women often lose self-esteem, and some even come to believe that they deserve to be beaten.

Battering is by no means limited to adults. High school and college women frequently experience battering in dating relationships. In one North Carolina survey, 60% of the adolescents who had dated acknowledged at least one episode of dating violence by the 12th grade. Furthermore, it seems that battering has a generational continuity. One study found that violent juvenile delinquents were four times more likely to come from homes in which their fathers beat their mothers than were nonviolent juveniles. 4

In spite of compelling arguments for speedy intervention, neighbors and relatives are often reluctant to report incidents of abuse or neglect, and some police officers and judges have been unwilling to interfere in what they regarded as private family matters. This seems to be changing gradually, but it still justifies special efforts by the medical community to educate health care

providers to recognize and respond to signs of violence and mistreatment when they find them.

The Public Health Dimension

Historically, violence has been seen almost exclusively as a problem for the criminal justice and legal system. In 1985, however, Surgeon General C. Everett Koop convened an unprecedented workshop on violence and public health, signaling public health's entry into the area of violence prevention. The increasing involvement of the Department of Health and Human Services was institutionalized in 1991 with the formation of the National Center for Injury Prevention and Control within the Centers for Disease Control and Prevention (CDC). "Public health," a team from the National Center recently declared, "seeks to empower people and their communities to see violence not as an inevitable consequence of modern life but as a problem that can be understood and changed."

The public health approach is best seen as a complement to rather than a replacement for criminal justice approaches to violence. As the Kennedy School's Mark Moore notes, most violence still occurs among adult men in robberies, in bars, and in organized criminal enterprises. But the public health approach has focused on the "long neglected violence occurring in the intimate settings of family and involving either spouses or children"—violence that often has not been reported to criminal justice agencies and for which the traditional responses of arrest and prosecution often do not suffice. Moreover, the public health approach has increased our awareness of the connection between preventing domestic violence and reducing adult criminal violence a generation later.⁶

Domestic violence is the largest single cause of injury to women in the US, forcing more than 1.5 million women to seek medical treatment each year. Spouse/partner abuse accounts for more visits to hospital emergency rooms than car crashes, muggings, and rape combined, so it should come as no surprise that Donna Shalala, Secretary of Health and Human Services, has called for "a national awakening to this unacknowledged epidemic in America." Domestic abuse has become a top priority of Shalala's department. The CDC has launched a national campaign to improve data collection on domestic violence and expand funding for prevention research, public education efforts, and grants to innovative community programs. Under the Family Preservation and Support Act of 1993, additional assistance—\$930 million over five years—was authorized for use at both the state and community level. North Carolina received about \$1.6 million in the program's first year and can expect gradual increases in subsequent years, peaking at nearly \$5 million in fiscal year 1998.

Physical violence and sexual abuse contribute to serious health problems—injury, depression, post-traumatic stress disorder, chronic pain, gastrointestinal disorders, and substance abuse, to name a few (see related article, page 434)—and the drain on our health care system is immense. The AMA esti-

mates that injury and poor health caused by domestic violence lead to approximately 100,000 days of hospitalization, 30,000 emergency room visits, and 40,000 physician visits—amounting to \$44 million in medical costs each year.²

The current health care debate presents us with a unique opportunity to correct some systemic faults that unfairly penalize victims of domestic abuse. A recent congressional hearing, for instance, revealed that some of the nation's largest insurers routinely deny life, health, and other insurance coverage to women who have been beaten by their partners. In essence, they consider domestic violence a "pre-existing condition," which they do not cover. In a survey conducted by the House Criminal Justice Subcommittee, eight of 16 insurance companies polled acknowledged they may reject an applicant on this basis. Health care reform that provides universal coverage and prohibits "pre-existing condition" exclusions would, no doubt, ease the financial costs and hardship caused by abuse.

State and Local Responses

In response to the continuing epidemic of abuse and the work of community advocates, state and local governments have formulated policies to address domestic violence (see related article, page 418). By 1984, at least 32 states had some form of domestic violence legislation. Since that time, state and local responses usually have included some combination of the following: shelters for victims, legislation that defines individuals entitled to protection, provisions for temporary or emergency relief for victims, provisions for issuing protective orders for victims, laws that provide police with some ability to arrest without a warrant, and court-ordered counseling for victims and male batterers. A recent Virginia law prohibits convicted spouse abusers from obtaining guns. Relevant North Carolina laws, enacted in 1989, include provisions for temporary and emergency relief and for warrantless arrest.

Mandatory Arrest. Most states allow police to prevent domestic violence offenders from subsequently coming within a certain distance of their victims. In 1992, North Carolina became one of a handful of states to adopt a "stalking" law that made it a misdemeanor to follow someone on more than one occasion or even simply be near them without lawful purpose. Law enforcement officers were previously unable to protect women from those who followed and or taunted them—even though these women had reason to fear bodily injury or death.9

At least 30 states now have warrantless arrest statutes permitting officers to arrest if there is probable cause, and some require domestic violence training as a component of police training. In most jurisdictions in the 1970s, officers could not arrest a suspect unless they had actually seen a beating. This policy was reversed in precincts around the country only after police departments became the target of landmark lawsuits in which critics charged that failure to make arrests had left women exposed to increasing brutality in the home. In 1984, for

instance, a jury awarded a \$2.3 million judgment against the Torrington, CT, police department for failing to protect a woman and her son from her husband's repeated violence.

Fear of liability put tremendous pressure on police departments to change their policies, and as a result, many states and the District of Columbia adopted laws requiring police officers to make an arrest when called to the scene of a domestic violence complaint.

Some questions remain about the effectiveness of mandatory arrest policies. Early research indicated that mandatory arrest and a few hours in jail reduced further battering incidents. A 1982 Minneapolis experiment, for example, compared the effectiveness of legal sanctions with more informal police responses and found that arrest was more effective in reducing subsequent violence in misdemeanor wife-assault cases. Arrest was most effective with those who were not career criminals and who were employed. However, some now argue that although mandatory arrests may reduce the number of beatings in the first 24 hours, they could lead batterers to later beat their partners more often in retaliation. Still others insist that such a requirement takes away police officers' discretion and could backfire in communities where police are viewed with distrust.

Coalitions. In the 1980s, many experts and policymakers believed that shelters were the most pressing need of battered women. As a result, the number of shelters increased from a single facility in St. Paul, Minnesota, in 1974, to 935 shelters, 530 safe homes, and 303 nonresident programs nationwide in 1987. Ocntributing to the surge in the number of shelters has been the development of state domestic violence coalitions that lobby for funds for shelters and other services, coordinate services across counties, provide referral for housing and counseling, and provide long-term planning and coordination of services for victims. Coalitions often include representatives from battered women's shelters and the health, legal, and law enforcement systems.

One local example is the Orange/Durham Coalition for Battered Women, which provides emergency services to victims of domestic violence and others who are indirectly affected by domestic violence (mainly children). The Coalition manages a 24-hour crisis line for battered women, provides shelter for 16 women and children, coordinates support groups and a batterer's treatment program, and provides community education and professional training. In March 1994, the Coalition received 155 calls from battered women in Orange and Durham counties. Another example is Interact, which offers 24-hour counseling and housing to battered women and victims of rape and sexual assault in Wake County (see complete directory in *Health Watch*, page 413).

At a congressional field hearing on crime prevention and law enforcement in Raleigh in April, Annette Sheppard, director of Advocacy and Community Education at the Coalition, testified to the critical role such programs play in our state: "In North Carolina last year, 33,000 women and children were served by the 64 state-supported domestic violence programs. On an average night, 400 women and children sought refuge at a battered women's shelter somewhere in our state."¹¹

Federal Legislative Initiatives

Domestic violence legislation has traditionally been a matter for state and local jurisdiction. The early 1970s saw the first federal initiatives in the form of model shelter programs and court-based services supported by the Law Enforcement Assistance Administration. Widely publicized hearings on domestic violence by the Commission on Civil Rights in 1978 were followed by President Jimmy Carter's establishment of a short-lived Office on Domestic Violence and, in 1984, Congress's passage of domestic violence legislation.¹²

The 98th Congress (1983-1984) passed the Family Violence Prevention and Services Act (PL 98-457), which provides grants to states for shelters and other services to victims of domestic violence and training for police officers. Similarly, the Victims of Crime Act (PL 98-473) established a crime victims' fund using fines collected from people convicted of federal offenses. The fund provides services such as crisis intervention, temporary shelter, counseling, court-related services, and payment for forensic exams.

Most recently, both houses of Congress have passed major crime legislation (in House-Senate conference at this writing) containing a variety of provisions intended to reduce the incidence of violence against women. The Violent Crime Control and Law Enforcement Act of 1994 (HR 4092) provides grants to state and local governments for programs to reduce violence against women, to prevent rape, and to encourage arrests in situations involving domestic violence. The bill also establishes new federal crimes of interstate domestic violence and stalking, provides protections against deportation of immigrant women who leave their battering spouses, and creates a National Task Force on Violence Against Women.

Several additional provisions in the crime bill should help combat domestic violence. The bill will put 100,000 more police in neighborhoods and housing projects, build additional prison space and toughen sentences for dangerous offenders, require prisoners to be given drug treatment before release, improve judicial supervision of persons with substance abuse problems, and provide work, training, and recreational opportunities in high-crime areas. The related Brady Law requires a waiting period and background check before handgun purchase. In its first month of operation, it prevented handgun purchases by at least 1,605 persons with histories of violent or criminal behavior, including 44 fugitives or persons facing outstanding warrants and a South Carolina man wanted for sexual assault who was arrested in the gun store.¹³

Conclusion

Americans are awakening to the threat of crime and violence, including the especially difficult and often invisible problem of domestic abuse. This has prompted responses at all governmental levels, including the federal measures we have detailed in this article. Much of what we are doing is experimental, and solid follow-up evaluation and research are essential because the problems are too desperate and federal dollars too scarce to waste on wishful thinking or mere responses to group pressures.

This is not to say that we are likely to find single or simple "solutions." We have stressed the legitimacy of both public health and criminal justice approaches to crime and violence and would counsel a pragmatic rather than ideological approach to the intertwined issues of prevention and punishment. Those who prey on others—including those closest to them—must be held accountable for their actions and made to bear the consequences. But as the current crime bill recognizes, we must also improve our capacity to intervene in critical situations before it is too late and offer more support for victims and potential victims.

Furthermore, we must transcend the boundaries of all

crime bills to strengthen families and lessen the stresses that tear them apart. We have made a beginning in the 103rd Congress. The Family and Medical Leave Act gives working people time to tend new babies and or meet medical emergencies without jeopardizing their jobs. The Budget Act's expansion of the Earned Income Tax Credit allows low-wage families to keep more of their earnings. But the challenge remains immense.

Having attempted to discharge the assignment given to us by the editors of the *Journal*, we are still bound to conclude that solutions to the problems of crime and violence will not be merely or even mainly governmental. Much of the problem is rooted in the erosion of personal responsibility, the breakdown of families, and the deterioration of community life. Each of us can contribute to the task of renewal. That is why the willingness of health professionals to broaden their sphere of responsibility and to deal more effectively with abuse and violence is so heartening. But government, as the agent of committed citizens, also has a role to play. It is critically important to get past the political posturing and rigid ideologies that have too often marred our efforts to deal with crime and violence and to undertake the varied and difficult efforts required to turn this threat around.

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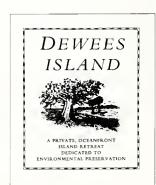
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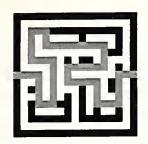
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	2,750	3,320	58	4,560	6,475
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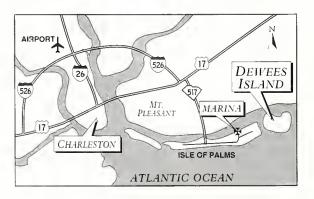


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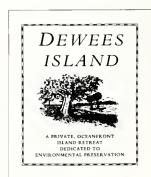
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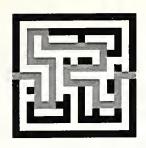
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510	535	34	605	1,390
535	555	35	635	1,485
560	580	36	670	1,580
585	605	37	710	1,675
610	635	38	760	1,770
645	675	39	820	1,913
680	725	40	890	2,055
725	780	41	970	2,200
780	845	42	1,060	2,340
845	920	43	1,160	2,530
915	1,000	44	1,275	2,720
990	1,085	45	1,410	2,910
1,065	1,180	46	1,560	3,105
1,145	1,280	47	1,725	3,305
1,230	1,390	48	1,905	3,505
1,320	1,510	49	2,100	3,715
1,420	1,640	50	2,305	3,940
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Physicians' Role in the Fight Against Family Violence

Breaking the Cycle, Controlling the Costs

Robert E. McAfee, MD

Editor's note: Portions of this article were previously published and adapted from Dr. McAfee's speech May 23 at the conference "End Violence Against Women: Integrating the Health and Legal Communities," at NCSU's McKimmon Center.

The day after Christmas 1993, Marsha Brewer-Stewart was found with a knife in her chest. She had been murdered by her husband. Just seven months earlier, Marsha had stood up for her husband in a Chicago court, fighting to clear him of attempting to kill her. She dismissed the event as a fit of drunken rage. That day, she was successful. Seven months later, she was dead.

That was one of the stories told at the AMA's National Conference on Family Violence this past spring. Unfortunately, there were many more. Every 12 seconds, 24 hours a day, 365 days a year, a woman is punched, kicked, slapped—or worse. Violence is the leading cause of injuries to women. More than one-third of the women treated in emergency rooms are victims of violence, and more than one-third of pregnant women are abused. Every decade, domestic violence kills as many women as the total number of Americans who died in the Vietnam War. We need to build a Vietnam War Memorial Wall every 10 years—filled with the names of women, victims of America's hidden, domestic war.

But women aren't alone. About 2,000 American children are beaten and starved to death every year. In 1991, 2.5 million children were reported to have been abused or neglected. Millions of elderly Americans are also abused each year.

Dr. McAfee is President of the American Medical Association, Chicago, Illinois, and a surgeon practicing in South Portland, Maine.

The Costs of Violence

The costs to our economy are enormous:

- Domestic violence results in 30,000 emergency room visits, 40,000 physician visits, and almost 100,000 days of hospitalization every year.
- Thirty-five percent of women who visit hospital emergency rooms do so because of abuse. Many need medical attention again and again.
- The direct medical costs of all violent injuries in the US leads to an estimated \$10 billion in health-related costs, \$23 billion in lost productivity, and almost \$145 billion in reduced quality of life—every year!

The economic costs of violence are high, but the social costs are incalculable. Despite the appalling numbers, millions of victims are ignored or overlooked because physicians fail to properly identify as many as 95% of domestic violence victims.

Waging a "War" on Violence

Make no mistake, domestic violence is no mere social issue. It is a public health crisis that demands a rigorous response by the medical profession. To turn the tide in a war of this magnitude will take every available recruit—lawyers, judges, the police, concerned citizens, local communities, all of us engaged in health care, the victims themselves—attacking on many fronts, all working together.

As physicians we spend our lives on the front lines. We see victims every day. The security of a physician's office may be

the only sanctuary an abused woman can find in a personal hell of violence and neglect. We have a responsibility, as citizens and community members, to do whatever we can to stem this growing American epidemic.

The first step is for physicians to educate themselves. We must recognize that violence is as American as apple pie, and that it affects all of us, regardless of background. The National Coalition of Physicians Against Family Violence keeps physicians informed about resources, model programs, speakers, and public education materials. Participants receive the AMA Diagnostic and Treatment Guidelines on child and elder abuse and domestic violence. They also receive an anti-violence poster stating that anyone can be affected by family violence and urging patients to discuss the issue: "When someone you love strikes out—physically, verbally, or emotionally—talk to someone you trust. When you break the silence, you begin the cure."

To recognize and treat victims of domestic violence, keep your professional radar turned on:

- ✔ Remember to screen your patients about violence.
- Ask questions such as: "At any time, has a partner hit, kicked, or otherwise hurt or frightened you?"
- ✓ Document your findings. Information in the patient's chart about "suspected domestic violence" can be valuable in court should the patient seek legal action. A physician's documentation validates the victim's allegations.
- Assess your patient's safety. Is it safe to go home?
 - Find out if weapons are kept in the house, if the children are in danger, and if violence is escalating.
- ✓ Review the options with your patient. Know where to refer.

 The AMA's guidelines for diagnosing and treating domestic violence state that the problem is so common that it should be screened for routinely in primary care settings. You may be all that stands between your patient and continual abuse. Remember to question your patients in a nonjudgmental way. Acknowledging that the violence is not the victim's fault will help to draw them out.

Creating a Safe Haven

A physician who was herself battered for almost 20 years offers these suggestions for physicians:

 Acknowledge that it is awful to be hit. It is frightening, humiliating, and painful. The first step a woman makes toward ending a battering relationship occurs when she feels that it is intolerable.

- Be specific. Ask: "Where are you going to stay tonight?"
 "Are you safe for the next 24 hours?" "Are your children safe?"
- Don't assume she's lying if she doesn't cry; she may be using a protection mechanism honed over years.
- Don't be frustrated if she doesn't take your advice. Ending a
 relationship—even a dangerous one—may take emotional,
 intellectual, and financial resources she does not yet have.
- Most importantly, leave the door open. Be a safe haven. Let her know that you're willing to accept her timetable.

Identifying victims is only the first step. Physicians should become familiar with the resources in their community: shelters, legal advocacy, counseling, support groups, crisis hotlines, and the state Alliance. Providing victims with options and helping them connect to a support group increases their chances of breaking the cycle of violence.

Learn about family violence. Be alert for signs of abuse among your patients. Provide them a safe haven in your office and in the community. Educate your patients—and yourself.

One number that you need to know is that of the North Carolina Coalition Against Domestic Violence: 704/786-9317. For state resources, write the North Carolina Department of Human Resources, 325 N. Salisbury St., Raleigh, NC 27611, and see the directory of listings in *Health Watch*, pages 413-6.

You'll also find allies in the AMA Alliances and your state Alliance. Thanks to state Alliances, there is a safe home

for abused children in Florida, a home for abused teen girls in Alabama, a transitional home for abused women in Mississippi. Other state Alliances have developed resource guides for physicians, held forums to educate the public, and broadcast informative messages on television. The Medical Association of Georgia and its Alliance recently launched a statewide family violence prevention campaign called "Life Preservers, a Life Line Against Violence" to educate physicians about the effects, signs, and symptoms of violence and inform them about resources to help its victims.

Despite the work done, our battle is only beginning. There is a lot left to do. You can join the National Coalition of Physicians Against Family Violence. Call 312/464-5066 and ask for Jean Owens. The only cost is your commitment to help curb family violence.

The public entrusts us with their care, and violence is one of the biggest public health issues of our times. As physicians, as citizens, as parents, as sons and daughters, we must work together to break the silence and end the violence.

We can win this war—but it will take your help.

"You may be all that stands between your patient and continual abuse.

Remember to question your patients in a nonjudgmental way. Acknowledging that the violence is not the victim's fault will help to draw them out."

Domestic Violence in America

Karen L. Bash, MD, and Fred Jones, MD

In the 1960s, domestic violence meant urban violence; in more recent years it has come to mean violence within the home. Domestic violence—defined as violent acts within the family directed against spouses, elders, and children—has increased to epidemic proportions. It includes a spectrum of behaviors ranging from threats and emotional abuse to sexual aggression and physical violence. It happens to all races, religions, and ethnic groups; it invades all neighborhoods and spans all socioeconomic levels. Women and children are affected much more often than men.

Approximately two to four million women are severely assaulted by male partners each year in the US.¹² This estimate may represent as little as half the true number since it is derived from public surveys, which may not include the impoverished, hospitalized, homeless, or incarcerated.³

According to a national survey, onequarter of all American families experience domestic violence, and domestic killing accounts for 20%-45% of all US murders. Approximately one-third of all female homicide victims are slain by husbands or boyfriends. Domestic violence is the cause of more injuries to females in the US than automobile accidents, rapes, and muggings combined. 4.6

Dr. Bash is Clinical Assistant Professor, Department of Obstetrics and Gynecology, Wake Area Health Education Center, Raleigh, and Dr. Jones is a nephrologist in private practice in Raleigh. The National Crime Survey estimates the annual medical cost of domestic violence at \$44 million, and sets the number of days lost from work each year at 175,000.4

This level of violence places an unacceptable burden on society and the health care system since doctors and other health care workers are called on to care for the victims of that violence. Former Surgeon General C. Everett Koop recently asked physicians to help curb violence in America. As physicians we have the opportunity and the responsibility to intervene. In this review we address the scope of domestic violence, discuss some of its causes, and outline an approach to intervention.

Etiology of Domestic Violence

The etiology of domestic violence is complex, but several theories have been advanced as explanations. One, known as the power theory, holds that cultures "assign" power within relationships. According to this concept, men are taught to revere the "masculine" characteristics of power, competitiveness, and aggression, and women are taught to assume more submissive and passive roles.

A second concept, known as modeling, postulates that viewing violent behavior leads to expression of such behavior later in life. For children, viewing violent behavior may be just as influential as actually experiencing violence because they learn that violence is an "appropriate" way to solve life's con-

flicts. Children who witness parental disputes resolved by violence are at increased risk of incorporating similar behavior into their own lives.

Television and other media may also play a role in perpetuating violence. Children watch as many as 180,000 murders, rapes, armed robberies, and assaults on television by age 18,8 and multiple studies suggest a predictive link between viewing violence on television during childhood and subsequent aggressive behavior as adults. Screen violence, now very graphic, often couples images of manliness with brute force. Also, within the music industry some forms of "gangster" rap carry messages of extreme violence, the songs describing vivid details of death and dismemberment.

Finally, it is commonly believed that easy access to handguns contributes to domestic violence. Many people state that they keep handguns at home for personal protection; however, it has been shown that there is a greater risk of homicide at the hands of a family member or intimate acquaintance in homes in which guns are kept.⁹

Overall it seems clear that the etiology of domestic violence is related to a host of factors including substance abuse, poverty, individual pathology, family dysfunction, access to handguns, and media violence. The relative importance of each factor varies, and the whole pattern can become enormously complex. At times, society seems inclined to accept violence as inevitable. As physicians, we must strive to intervene because domestic violence is a major public health issue.

The Physician's Role

The medical community is as likely to see the victims of domestic violence as is the criminal justice system. As a first step in controlling this epidemic, physicians must learn to ask patients if they are affected by violence within the family. Unfortunately screening for domestic violence is almost nonexistent. Only about one in 20 battered women is correctly identified as such by her physician. 10 Many victims of violence see and are treated by health care providers on multiple occasions, without any assessment being made of their home situation. In part, this happens because they often come to emergency departments at times when social services are not routinely available. Women also are often reluctant to volunteer the source of their injuries, and many physicians find it difficult to raise questions about the possibility of domestic abuse. Some physicians lack the training and time to adequately deal with abuse, others are reluctant to get "involved" because they feel that domestic abuse is a private matter between intimate partners.

When injured women present to an emergency department, clinic, or private office, they should be questioned about the source of their injuries in a nonthreatening and nonjudgmental manner. The interview and examination should take place in the absence of the partner. Most women do not find nonjudgmental questioning offensive, and incorporating such questions into the physician's routine provides patients with an opportunity to talk about abuse. Questions about domestic violence, including the frequency of injuries and visits to other health care facilities, should be part of the history taking of all primary care physicians. Doctors need to approach domestic violence as the major public health issue it is, similar to sexually transmitted diseases and substance abuse.

Abused women often present with multiple, vague somatic complaints: sleep disturbance, symptomatic depression, irritability, lethargy, mood swings, gastrointestinal disturbance, dyspareunia, or pelvic pain. Also common are chronic headaches, chest pain, choking sensa-

Table 1. Guidelines for the diagnosis of domestic violence

- 1. Patients at special risk for abuse:
 - a) Pregnant women or those with pregnancy-related problems
 - b) Patients whose injuries don't correlate with their explanation
 - c) Patients with frequent, vague, nondescript symptoms such as chronic pelvic pain, gastrointestinal complaints, dyspareunia, chronic fatigue
 - d) Patients with symptoms of depression or suicidal ideation or attempts
 - e) Mothers of abused children
 - f) Substance abusers
- 2. Screening questions for abuse, asked in a nonjudgmental manner:
 - a) I noticed your bruises. How did your injury occur? Did someone hurt you?
 - b) Your partner appears to be very protective. Does he ever attempt to control your actions? Does he hurt you when he loses his temper? Was he responsible for your injuries?
 - c) Often patients presenting with these types of symptoms have a history of having been hurt by another person in the past. Has that ever happened to you?
- If there is not enough time during the office visit to adequately explore the
 patient's home situation, assure the woman's immediate safety and schedule a return visit as soon as possible. Make certain that the patient knows how
 to contact the local shelter should the need arise.

tions, nervousness, numbing and tingling sensations, and palpitations. The patient may be "difficult," appearing hostile, non-compliant, dependent, and helpless. After extensive testing she may eventually be labeled as anxious, or suffering from panic attacks, and treated with anxiolytics by frustrated physicians.

Physicians must learn to recognize the syndrome of abuse (Table 1) and to provide referrals to agencies where women can obtain legal and financial assistance, employment information, child care, housing, and counseling (see Health Watch, page 413). Only with these services can women gain independence from their abusers and reestablish a strong family structure. Doctors should have lists of social services and shelters (including telephone numbers) available. Abusers often come to the office with their partners, so it is helpful to have this information printed on wallet-sized cards and placed in women's restrooms where it may be taken unobserved.

The abused woman must regain control over her own life, but changes cannot be made overnight. It takes time to reestablish self-esteem and emotional and financial stability. Physicians can initiate

the process and provide emotional support, but they cannot make decisions for the patient, who may decide to stay in the abusive relationship. Doctors must accept and support such decisions, but make plans to reassess her safety at each visit. Doctors should stress that the patient does not "deserve" abuse and that she is not at fault. Domestic abuse is a crime and the abused is no less a victim just because she knows her attacker.

Physicians have a unique opportunity to see entire families and identify problems before injury occurs. Primary care physicians should assess the family unit for safety. Adolescent females and males should be questioned about their safety at home and at school. Men should be questioned about stress factors and violence in the home. Only when such questioning becomes routine we will be able to detect the actual and potential magnitude of domestic violence in America and deal with it. We must develop protocols and policies to aid health care workers in identifying patients and assessing their risks. We must help medical schools and residency programs provide future physicians with the ability to recognize and treat domestic violence.

Characteristics of Abusers

What type of person would abuse an intimate partner? How can we recognize abusers? Is there a recognizable "abusive personality"? Researchers have attempted to establish a common profile for batterers, but have thus far been unsuccessful. We do know that in abusive relationships the violence may escalate during times of increased stress or drug and alcohol intoxication, but it can occur at any time.

Batterers themselves often suffer from low self-esteem. They use emotional, psychological, and physical abuse to control their intimate partners. Emotional and psychological abuse may occur daily; physical violence, although less common, represents the ultimate expression of dominance over the partner. Abusers rarely experience negative consequences from their behavior because their partners usually don't report the abuse. Domestic violence is part of our society's acceptance of violence in general since battering remains the least reported crime in America. Many batterers do not even consider their violent behavior a problem.

Characteristics of the Abused

The cycle of abuse is a slow process. It usually begins with minor controlling behaviors, progresses to emotional and psychological abuse, then to physical violence. Usually by the time the woman recognizes the extent of the problem there are numerous barriers to her leaving the relationship, especially if she has children whose welfare she must consider. She must find safe and affordable housing, a means of support for her family, adequate child care for small children, and she must provide emotional and psychological support for her children at a time when she herself suffers from low self-esteem. Leaving means her standard of living nearly always decreases and may actually fall below poverty level with little hope for improvement. She may not have the means to obtain legal assistance, adequate housing, medical care, job training, or education.

Many women fear further violence or even death if they leave their abusive partner. Batterers may threaten to kill the woman, the children, or themselves if the abused leaves. Since the woman has seen her partner's violent behavior, she usually believes him capable of fulfilling the threat. He may also threaten to kidnap children or fight her for custody.

Paradoxically, abused women may find that friends, family, and clergy side with their partner, especially if they have kept the abuse secret out of shame and embarrassment. Since most physical abuse is directed toward areas on the torso, upper extremities, breasts, and abdomen, the injuries are hidden from public view. Most batterers limit the amount of physical abuse inflicted on their partner and sometimes limit their partner's access to medical care. Therefore the episodes of abuse often go unrecorded and undetected by family and friends, or are explained away as "accidents."

Domestic Violence in Pregnancy

As many as one out of four to one out of 10 women experience abuse during pregnancy.10 Abuse is a more common complication of pregnancy than hypertension, preeclampsia, hyperthyroidism, or gestational diabetes, yet often goes undetected. Abuse that begins or escalates during pregnancy may result in miscarriage, preterm labor, placental abruption, fetal injury, or fetal death. Women who have been beaten prior to pregnancy are more likely to be beaten during pregnancy. The already abusive partner may see the fetus as a competitor who will interfere with his control over the woman. Changes in the couple's sexual relationship, family structure, and financial stability may all contribute to the abuse.

All women presenting for prenatal care should be asked about domestic violence. Health care workers spend a great deal of time with women throughout the gestation. This is a good time for education about matters of general health, in-

cluding domestic violence. It should be stressed that abuse is not normal or deserved, and should not be tolerated. Posters and other reading material placed in waiting areas can alert all patients about the prevalence of domestic violence.

Embarrassment and fear sometimes make patients reluctant to reveal abuse, but pregnancy provides a time and opportunity to discuss issues regarding general health and safety. Lack of prenatal care, frequent missed appointments, or numerous "accidents" during the pregnancy should be red flags for domestic abuse. Other warning signs include substance abuse, depression, and suicidal gestures. Health care workers should be suspicious of "overprotective" partners who accompany the woman to all visits and appear to make decisions regarding her health care and the pregnancy in general. It is appropriate to request that partners leave the room during office visits, allowing patients the privacy necessary to discuss abuse. Injuries to breasts, abdomen, back, and genitalia should raise the suspicion of abuse. Physicians should not be surprised if patients initially deny abuse; it may take time for an abused woman to trust her doctor enough to discuss domestic violence.

Pregnant women, like all others, need to be provided with lists of available services and support, and need to be aware that help is available if they choose to leave their partner. To make such a move, the abused woman must have a plan, access to necessary documents, money, and clothes for herself and her children.

The doctor must emphasize that the disclosure of abuse will be held in strictest confidence. The physician must be a trusted ally and must not place the woman in greater danger by confronting the abuser without the woman's permission. She must be offered referral to agencies eapable of providing her with the assistance she needs, and her physician must continue to provide emotional support throughout her pregnancy and beyond.

Summary

Domestic violence is an underrecognized

problem of immense cost. It is a crime; its victims must be identified and protected. The medical and judicial communities share responsibility in addressing this issue and providing support for victims.

The role of health care workers in recognizing and preventing domestic violence cannot be overestimated. Direct questioning of patients, especially about the source of any injuries and about safety at home, is the first step in uncovering

abuse. Educational programs for health care providers and the general public can change society's view and tolerance of this problem.

Physicians must take an active role in changing community attitudes about domestic violence and in instituting programs to reduce its incidence. Medical treatment of the injuries resulting from domestic violence is not sufficient. Abused women need the care of a team of

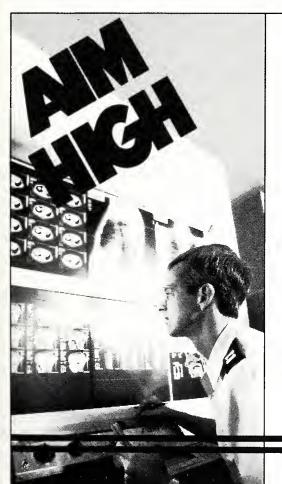
professionals who can address psychological, emotional, and physical injuries. They must also be provided with safe housing and financial and legal assistance in order to escape the abusive relationship.

Physicians and legislators must work together to effect change. Domestic violence is a public health menace. We need to break the cycle of abuse that has become an integral part of our society.

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Diagnosing Child Maltreatment

Gail R. Brown, MD, MPH, Desmond K. Runyan, MD, DrPH

As physicians and human beings we can think of few things more heinous than the harm of a child by a parent or caretaker. Nevertheless, child maltreatment is becoming widely recognized, and it is likely that all providers of child health care will be faced with decisions relating to this issue. In the US during the past two decades, the number of reported instances of child abuse and neglect has increased by 150%. In North Carolina in 1992, local Departments of Social Services received more than 59,000 reports of abuse or neglect (approximately one-third of which were later substantiated) and, in 1992, 25 North Carolina children died from physical abuse.

"Child maltreatment" is a more inclusive term for what was previously termed "child abuse or neglect" or simply "child abuse." There are four recognized forms of maltreatment: physical abuse, sexual abuse, neglect, and emotional maltreatment (Table 1). Both physical and sexual abuse involve acts of commission by a caretaker, while neglect involves acts of omission, and emotional maltreatment may involve either. In this article we will deal primarily with the recognition of and response to child physical abuse, although the other forms of maltreatment will be dealt with briefly.

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Evaluation and Management

Key components in evaluating and helping victims of suspected maltreatment are: history, physical exam, laboratory and radiological studies, and intervention (including referral and reporting).

History

The medical history is usually the most important aspect of the diagnostic encounter. It should document in detail the developmental maturation of the child, the nature and the extent of the injuries, whether or not there was a delay in seeking treatment, and whether no history at all was provided or if there was an evolving history.

The dynamics of the family situation often reveal a background of underlying stressors leading up to a critical event and

abuse. Abuse can be seen as an interaction between the child, the perpetrator, and the environment. Factors that may put particular children at risk include any physical or mental disabilities as well as temperamental and behavioral characteristics. Factors that make a parent more likely to abuse include alcohol and drug use, depression, isolation, and a history that they themselves were abused in childhood. The environment plays a role because poverty, unemployment, parental discord, and other stresses may predispose to abuse. Poverty and rural living have little or no role in predisposing to sexual abuse, but having a biologically unrelated adult man in the home while the mother is away at work does.1

Marital discord itself has a negative impact on children who may suffer from anxiety disorders, psychosomatic disorders, and psychological and behavioral dysfunction. In addition, abusive husbands are consistently more likely to have

Table 1. Definitions of child maltreatment*

Physical abuse—Physical injury inflicted by beating, biting, kicking, burning, or otherwise physically harming a child. (acts of commission)

Neglect—Failure of a caretaker to provide for a child's basic needs—physical, medical, educational, and emotional. (acts of omission)

Sexual abuse—Fondling, intercourse, incest, rape, sodomy, exhibitionism, or other forms of sexual exploitation by a caretaker.

Emotional maltreatment—Bizarre punishment, scapegoating, belittling, or psychological rejection of a child by a caretaker.

Adapted from Child Abuse and Neglect: A Shared Community Concern. DHHS Publication No. (ACF) 92-30531, Revised March 1992.

witnessed conjugal violence when they were children than their nonabusive counterparts. This supports the idea that wife abuse has profound negative effects on the children.² The larger issues of societal tolerance of violence in general and the use of force to resolve conflicts, in particular the use of corporal punishment in the name of discipline, is receiving new research interest as our society turns its attention to the needs of the young child.

The Physical Exam

The physician needs to document the appearance of the child as well as his or her demeanor (see related article, page 423). Prior growth data can help establish patterns of care. Children living in an abusive or neglectful environment can be wasted, malnourished, dirty, have evidence of frequent skin infections, exhibit a vacant staring expression, or be unresponsive to the examiner. The child may have developmental delays from lack of stimulation. Many of these abnormalities can be reduced by removing the child from the environment but long-term sequelae often remain.

Skin. The skin is the most obvious and common organ subject to abuse, resulting in bruises, burns, or patterned marks including bites. The color, distribution, and size of bruises should be documented. Bruises normally evolve from a swollen red area (one to three days), to purple (one to five days), green (five to seven days), yellow (seven to 10 days) and brown (>10 days) as they resolve. Because of the wide range in colors it is not possible to date bruises with great accuracy, but often it is possible to state that bruises appear to be of various ages, suggesting that the child was subject to abuse over a period of time.

The distribution of bruises can sometimes help determine whether or not they were purposefully inflicted. Accidental bruises occur on bony prominences such as the chin, forehead, elbow, knee, and shin. Bruises on the trunk, the genitalia, around the ear, or overlying other soft, non-bony structures are not common and may indicate abuse. Slap marks may leave

two or three parallel bruises in the outline of the hand impact (Fig. 1). A child who has been gagged may have bruises in the corners of the mouth, and those who have been bound may have bruises or friction burns around the wrists.

Burns are common causes of unintentional as well as intentional injury in children. It is essential to examine the location and pattern of the injury as well as the history given by the caretaker. Cigarette burns are round, sometimes bullous lesions typically found on the palms, soles, genitalia, or buttocks. Cigarette burns are usually inflicted on sensitive areas or parts of the body that are normally covered. Cigarettes measure 7 mm in diameter but the size and depth of the burn depend

on the duration of skin contact.³ It is important to differentiate intentional cigarette burns from impetigo, which is also bullous but commonly occurs around the nose, mouth, or buttocks. Impetigo lesions are not as well demarcated and respond to antibiotics.

Intentional immersion burns may result from misguided efforts at discipline, particularly in matters of toilet training. The longer a child is exposed to hot water the more severe the burn. Discomfort occurs at a water temperature of 118°F, and a full thickness burn occurs after an exposure of approximately 3 seconds to water at 140°F. This has led to the recommendation that hot water heaters be set at a maximum of 120°F.

A classic immersion burn from holding a child in hot water shows a typical distribution because flexion of the extremities by the child spares the skin in the flexor creases, and the buttocks skin may be spared by contact with the lower surface of the tub. Occasionally parents may claim they did not realize the water was hot enough to scald the infant. In



Fig 1: A slap may leave parallel bruises in the outline of a hand. Illustration provided by Dr. Jean Smith.

these cases it will help to document the temperature of the water coming out of the tap and to recreate the scene as it is stated to have happened.

Unintentional scalding splash injuries can happen to exploring toddlers, but the burns should occur on the child's front surface and usually have a typical "v-shape" because the burn diminishes in intensity from the point of initial contact as the hot liquid is cooled by the body.

Patterned marks often give clues about the instrument used to inflict them. Wires and cords leave characteristic looped marks on the skin. Bite marks that have an intercanine distance of more than 3 cm have been inflicted by an adult. Bites by animals may be offered to explain bite marks but animal bites typically tear flesh whereas human bites tend to bruise.

Bones. Very few fractures are pathognomonic for abuse. Exceptions include the metaphyseal chip fracture that occurs after traction to or shaking of the extremities (Fig. 2, next page) and posterior and lateral rib fractures that occur





Fig 2 (left): Chip fractures of distal femur in abused infant. Proximal tibia shows bucket-handle pattern. Fig 3 (right): Oblique chest view in victim shows healing posterior rib fractures and recent lateral rib fractures. Radiographs courtesy Dr. David F. Merten.

when an infant is held tightly and squeezed (Fig. 3, above).

Chest and Abdomen. Injuries to the chest are usually due to blunt trauma that causes rib fractures as discussed above. Fractures of the lower ribs may damage the spleen, liver, or kidneys.

Intentional injury to the abdomen of a child can pose a diagnostic dilemma. Because signs of external trauma such as bruising are rare and because the victims are usually young and unable to verbalize their pain, there is often a delay in diagnosis that does not occur with unintentional abdominal trauma. As a result, the mortality rate from intentional abdominal trauma is very high.

Head Injury. Intracranial injury is the most important cause of morbidity in abused children and is the leading cause of death from abuse. The injury may be obvious—bruises or skull fracture—but just as common is severe intracranial injury without obvious external trauma.

The following represent specific in-

jury patterns that physicians may see:

Shaken-Baby Syndrome. This term describes a constellation of findings including: 1) cerebral edema, contusion, or infarction; 2) subdural or subarachnoid hemorrhage; 3) retinal hemorrhages. There may be rib fractures and traction lesions of the long bones as well. There may be little or no external head trauma in pure shaking injury but usually there is some external evidence (bruising or skull fracture). In fact, because of the frequent association with impact trauma, the syndrome is now often referred to as the shaken-impact syndrome. Mortality is high—about one-third of shaken babies die acutely-and many survivors experience chronic mental limitations.4 Infants are particularly susceptible because they have relatively large heads in proportion to their bodies, weak neck muscles, and incompletely myelinated brains.

The Battered Child. A child, usually young, may present with multiple injuries in various stages of healing, the result

of extreme physical abuse over a period of time. Common are rib fractures and long bone fractures. Such evidence helps establish the child as a victim deserving of protection and helps in prosecuting cases of fatal or severe child abuse.

Neglect. Children who have been severely physically neglected may present as cases of malnutrition or failure-to-thrive. Growth data can help pinpoint the onset of neglect and assist with diagnosis. Cases of neglect are no less an emergency than physical abuse, and hospitalization is often warranted. The developmental sequelae of severe neglect during the first years of life are profound.

Sometimes parents seek religious exemption from medical treatment. In North Carolina a parent or guardian has the right to refuse preventive care such as immunizations, but lifesaving medical treatment may not be refused. Failure to obtain such treatment for a child constitutes medical neglect.

Emotional Maltreatment. Emotional

nurturing is critical to character development. Juvenile delinquency has been linked to childhood abuse and neglect by at least one researcher,⁵ and those who have not been nurtured during their formative years have difficulty forming secure attachments or becoming self-sustaining adults. We are just beginning to appreciate the societal implications of raising children without adequate nurturance from a stable family.

Sexual Abuse. It is beyond the scope of this paper to prepare clinicians to perform the specialized exam required in cases of suspected sexual abuse. But an external genital exam should always be carried out in cases of suspected abuse of any kind. Reece provides an extended discussion of the medical examination for child sexual abuse.6 It is important to know that medical findings are often not present in cases of sexual abuse even though penetration is alleged or admitted. Therefore, the lack of physical findings does not exclude the occurrence of sexual abuse. A careful evaluation by an experienced interviewer and examiner is the proper management of these children.

Very few children need sedation or anesthesia for the genital exam. In our experience this is necessary only when a prior medical evaluation was poorly done. Unless there is active bleeding, there is no need to use a speculum as a part of the evaluation. Children old enough not to need restraint for an otoscopic exam will not need restraint for a genital exam. In fact, restraining a sexually abused child only exacerbates the harm already inflicted by the abuse and rarely leads to useful medical discoveries.

Laboratory and Radiologic Evaluation

No single diagnostic test is essential to the evaluation of the abused or neglected child. Clinicians must use their judgment in ordering tests. As a word of explicit caution, rapid chlamydia tests are not acceptable in evaluating a child for sexual abuse; chlamydial culture must be performed. The routine collection of chlamydia and gonorrhea cultures and serologic tests for HIV and syphilis is considered good practice in many settings.

The site of injury will determine which (if any) radiologic tests to perform. Bone surveys may help detect fractures in children less than three years old; screening x-rays are sometimes useful in children three to five years old, but are not generally helpful in children over five years of age. In general, x-rays should be thought of as a correction for an inadequate history. If the child is old enough and verbal enough to give a good history, survey x-rays are unlikely to be productive. Whenever done, x-rays should be read by a radiologist experienced in detecting the subtle forms of inflicted bone injury in children. It is also critical that clinicians maintain communication with the radiologist so that rib fractures on chest films obtained in infants for any reason are not missed and the opportunity to intervene not passed by.

Intervention

Reporting. North Carolina has a universal reporting law (see related article, page 418). It requires that any person who suspects abuse or neglect of a child report their suspicion to their county Department of Social Services. When calling in such a report you should provide the following information:

- ✓ the name and address of the child;
- the name and address of the child's parent, guardian, or caretaker;
- ✓ the age of the child;
- ✓ the present whereabouts of the child;
- the nature and extent of any injury or condition resulting from the suspected abuse or neglect;
- any information that might be helpful in establishing the need for protective services or court intervention.

It is important to follow the phone referral with a letter containing as much of the above information as available because verbal communication of medical findings may be misunderstood. In addition, physicians should take it upon themselves to advocate for the needs of any child they report. The social services system is often stretched beyond its ef-

fectiveness by large caseloads. Continuing physician involvement will ensure that individual children receive appropriate attention.

Hospitalization. Suspected abuse or neglect is a serious and sometimes lifethreatening condition. Physicians should hospitalize patients accordingly. Hospitalization is appropriate for infants with severe failure-to-thrive and often helps to differentiate organic from social causes. In cases of suspected abuse, hospitalization can protect the child from further injury and allow time for a thoughtful and well-coordinated approach to the needs of the child and family.

Referral. Expert opinion concerning suspected child maltreatment victims is available. The North Carolina Child Medical Evaluation Program provides expert examinations of child victims by consultant physicians statewide. It also provides physicians with specialized training in the detection of physical and sexual abuse. When faced with an emergency, physicians should hospitalize or refer to a hospital with an active Child Protection Team.

Interdisciplinary Teams. Child maltreatment is a problem that crosses more professional boundaries than almost any other condition a physician encounters. For this reason multidisciplinary teams can be very helpful in case management. Hospital child protection teams consist of physicians, nurses, and social workers who review cases to decide the best course of management. Community Child Protection Teams are made up of county representatives from social services, medicine, the judicial system, mental health services, law enforcement, public health, and others. They review difficult cases and help to make case decisions. By mid-1995 all North Carolina counties will have Child Fatality Prevention Teams responsible for reviewing all infant and child deaths that occur in the county (see Rogers and Gravatt, NC Med J 1994;55:329-33,336-8). The involvement of physicians will be essential to studying patterns of child fatality and in exploring areas of intervention.

Testimony. Intervention into child maltreatment intersects the courts in two

venues. The first occurs when a child needs to be removed from a hazardous environment and the custodian changed. This requires that a petition be filed in juvenile court. This venue has little jurisdiction over any adults involved but must be used if a child is to be removed from his or her parents, even temporarily. Physicians may be asked to testify in juvenile court in front of a judge and the immediate parties to the case without a jury. This court is child-focused and the standard of proof is less than with criminal prosecutions. Many jurisdictions are satisfied with the medical record as evidence without having the physician appear.

The second instance occurs in about 6%-10% of child maltreatment cases,

when the physician is asked to testify in criminal proceedings. This venue requires a higher standard of evidence, and testimony in criminal court may require preparation by the physician. The infrequent use of this venue means that few cases seen by a physician are ever contested here. Most criminal cases are settled by plea bargaining. An accurate, clear, and credible medical opinion by an experienced physician can often avoid trial and result in a plea bargain by the defendant. Examining physicians may view the court as an unpleasant sequel to caring for a child victim; it is more appropriate to view court participation as another opportunity to assist the child victim.

Conclusion

Child maltreatment represents a diagnostic and therapeutic challenge for clinicians. Physicians who have contact with children must be well-informed about the issues underlying maltreatment, as well as its recognition and management. Beyond these basic responsibilities, physicians have many opportunities to become involved as advocates for the children they treat. Local departments of social services or the North Carolina Child Medical Evaluation Program (919/966-2135) can provide information on what doctors can do.

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Elder Abuse

How to Spot It—How to Help

Mary E. O'Brien, MD

The abuse of elders has occurred in virtually every culture since primitive times. But awareness of this tragic phenomenon is relatively recent. In fact, the first case report of elder abuse appeared in 1975 when A.A. Baker described "Granny battering" and also reported over-sedation of elderly persons by their caregivers and physicians. During the 1980s reports of and studies on elder abuse appeared more frequently in the medical literature. Nevertheless, elder abuse remains an unpleasant topic most physicians would prefer to ignore. Unfortunately, the combination of a rapidly growing older population and dwindling financial and social resources portend even more serious problems in the coming years. Public and physician awareness of this tragic problem may protect some of our most frail citizens and assist the growing numbers of families in crisis.

What Constitutes Abuse?

In the broad sense, abuse is the deprivation of one's quality of life by another person. In 1987, the American Medical Association defined elder abuse as "an act or omission which results in harm or threatened harm to the health or welfare of an elderly person." For practical purposes, five types of abuse are generally recognized:

1. Physical abuse: hitting, kicking, bit-

- ing, deliberate burning or scalding, using restraints unnecessarily or excessively, intentionally inflicting pain or injury.
- Emotional or psychological abuse: name calling, verbal insulting, deliberate denigration or humiliation, behaviors assaulting one's self-esteem.
- Sexual abuse: forced sexual activity with a competent individual or unopposed sexual activity with a mentally impaired or incompetent person.
- Financial abuse: diversion of an individual's resources (property, pension funds, Social Security checks, etc.) to other parties without consent or by coercion.
- 5. Neglect: failure to provide the necessities of life, either passively or actively (for example, by preventing a visiting nurse from seeing the patient, or failing to provide adequate food, clothing, shelter, medication, hygiene, medical, or dental care).

How Common is Elder Abuse?

The prevalence of elder abuse is difficult to determine. Shame, embarrassment, ignorance, and fear of reprisal or legal action compromise accurate reporting. Various studies estimate the prevalence of elder abuse in the US at 4%-10% (1.5-3.2 million persons), but this may represent significant underreporting. In North

Carolina, an estimated 30,000 or more older people may suffer abuse this year.

What Signs Should Clinicians Look For?

The first step in recognizing elder abuse is simply an awareness of the problem (Table 1, next page). Patients and caregivers may signal a worrisome situation through nervous or unnatural body language. For example, when the patient and caregiver or family members have a healthy relationship, they tend to sit together in an office or waiting room. Patients who distance themselves as much as possible from caregivers or family members are sending a serious message.

Rapidly darting eye movements or inability to establish normal eye contact may signal an unhealthy relationship. Excessive fearfulness, anxiety, or agitation may be clues to an abusive situation. Conversely, behavior that is extremely passive, quiet, and withdrawn may reflect despair over abuse or exploitation.

Patients presenting with unexplained injuries or accidents warrant a thorough investigation. Frequent visits to multiple doctors or emergency rooms may indicate abuse. And conflicting stories from patients and family members, common with dementia, may suggest abuse.

A careful physical examination is essential. Bruises or abrasions on the face, arms, or lower legs can be readily

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appreciated, but the most serious injuries are often found on clothed areas of the body. Consequently, it is important to have the patient disrobe completely. An individual who has been physically or sexually abused will often be reluctant to undress—another warning sign of a potential problem.

Examination of the head should focus on scalp, eyes, nose, and mouth. Are there bald patches, bruising, or bleeding into the scalp from hair pulling? Is a black eye the result of an accidental fall or was a closed fist the culprit? Is there swelling of the nose or lips, lacerations, or missing teeth? Fractures of the face or skull can result from accidents, but the question of abuse should come to mind.

A good physical exam should al-

ways include a search of the skin for rashes or lesions such as basal cell carcinomas or melanomas. This presents an opportunity to check for signs of scalding, deliberate burns, bites, or bruises. Victims of abuse are often shaken forcefully, which may leave finger-shaped bruises on the upper arms. Extremities may reveal bruises or abrasions from chains, ropes, or electrical cords used as restraints.

Notice should be taken of the patient's undergarments. Torn, stained, or blood-tinged underwear may indicate sexual abuse. The genital area should be checked fortenderness, bruising, or bleeding. Older individuals can certainly be sexually active by choice but signs of sexually transmitted diseases in a de-

mented or frail patient should raise concerns about abuse.

Overt abuse is usually easy to recognize, but neglect may be more subtle. A patient who presents repeatedly with dehydration or symptoms from inadequate or excessive medication dosing should be assessed for neglect. Inadequate skin, nail, and dental care may signal self-neglect or neglect by the caretaker. Clothing that is dirty, tattered, or inappropriate for the season suggests neglect.

Table 1. Clues to elder abuse

Signs of possible emotional abuse:

Extreme fear or agitation
Overly quiet or passive behavior
Depression
Rapid darting eye movements
Distancing self from caregiver

Signs of possible physical abuse:

Eye injuries

Unexplained burns

- cigarette
- immersion
- patterned electric iron, burner, curling rod

Unexplained bruises

- face, lips, upper arms, torso, back, buttocks
- friction from cords, ropes, chains
 Bruises in multiple stages of healing
 Lacerations
- mouth, lips, gums Bite marks

Signs of possible sexual abuse:

Torn, stained, or bloody underwear Bruised or bleeding genitalia, anal area Signs of sexually transmitted disease

Signs of possible neglect:

Dehydration
Malnutrition
Poor hygiene
Inappropriate or soiled clothing
Untreated injury or illness

Who Are the Abusers?

Although abuse occurs in every segment of society, the overwhelming majority of abusers are close family members who live with the victim. They are often financially dependent on the pension or Social Security income of the victim. Typically, spouses engage in physical abuse and adult children engage in financial abuse. Abusers are generally ill-prepared for the responsibilities of caregiving. They often have problems of poor impulse control and may be dependent on drugs or alcohol. Many abusive caregivers are under significant stress (divorce, job loss, bankruptcy, etc.) and may themselves have been victims of abuse. Psychiatric illness and cognitive impairment are common in abusers.

Who Are the Victims?

Anyone can be a victim of abuse, but certain individuals are at particularly high risk. Elderly women (older than 75) who live in isolated, rural settings are especially vulnerable. Many victims are completely dependent on their caregivers for care. They are often demented and incontinent and frequently display behavioral problems such as shouting, whining, or wandering. Although "the patient" is usually assumed to be the victim, sometimes it is the caregiver who is abused by a violent or combative patient.

Case Histories. Family members are not the only people who abuse elders. Sadly, abuse by professional caregivers occurs both intentionally and unintentionally. The following case histories illustrate the subtle ease with which even the well-intentioned can inflict "abuse."

Case 1. Mrs. X, a 92-year-old woman, had carried a vague diagnosis of "psychosis" for several years. She had been a resident in a rural rest home for three years. For 10 months before admission to the hospital, she had been given two phenothiazines, haloperidol, and thioridazine, around the clock for "agitation" and "screaming." Reportedly, the patient would scream if anyone touched her or entered her room. She was hospitalized for treatment of multiple, extensive pressure ulcers.

On the geriatric unit, efforts to assess the pressure ulcers were hampered by her combative behavior and an overpowering stench. Multiple, stage IV ulcers were noted over the sacrum, scapulae, and heels. In preparation for surgical debridement of the ulcers, an infusion of morphine was begun and the phenothiazines discontinued. Twenty-four hours later the patient was coherent and non-combative. It became clear that she was not psychotic but had, in fact, been reacting

to excruciating pain, which had gone unnoticed and untreated.

Case 2. Mr. Y, a 96-year-old man, was admitted to the hospital with congestive heart failure and a urinary tract infection. He was treated with antibiotics, diuretics, and vasodilators. A Foley catheter was placed to record urinary output. Because the patient repeatedly attempted to pull out his intravenous and urinary catheters, he was placed in a Posey restraint and hand mitts. He continued to be combative and managed to pull out the intravenous catheter; four-point restraints were placed to prevent self-injury.

The patient was transferred to the geriatric unit. In keeping with our policy, all restraints were removed. The intravenous and Foley catheters were discontinued. Oral feeding and antibiotics were initiated. No further combative behavior was noted.

The following day nurses on the floor were unable to find the patient. He was discovered in a recreation room playing the Chopin Waltz in C# minor and entertaining other patients on the floor. The patient revealed that he had been a professional pianist for nearly 80 years.

How Should We Intervene?

Physicians are in a prime position to recognize signs of elder abuse (Table 1), but the problem must be confirmed once it is suspected. It is helpful to talk to other relatives, arrange for home health visits, even carry out an old-fashioned house call. Suspicion of serious physical, sexual, or financial abuse should lead the physician to contact Adult Protective Services. A working relationship with a social worker familiar with reporting practices and community resources is invaluable.

A multidisciplinary team, with input from nursing, social services, pharmacy, and nutrition, can initially assess the patient, identify various aspects of abuse, and develop a plan for intervention. Team members can also help in the rehabilitative and counseling process and facilitate access to resources such as visiting nurses, home health aids, chore workers, Meals on Wheels, mental health services, and legal aid. Many older patients are afraid to report abuse because they fear it will precipitate placement in a nursing home. When they are reassured that they can remain in their own home with the help of various home health services, they are more open to appropriate intervention.

Can We Prevent Abuse?

The first step in preventing the tragedy of elder abuse is to increase public and professional awareness of the problem. Physicians must be prepared to educate and counsel patients, families, caregivers, and professional staffs. Most caregivers have little or no preparation or training for the responsibilities and stresses involved in round-the-clock care of a frail, elderly person. The accumulation of stresses can easily overwhelm caregivers with poor impulse control, limited coping skills, or emotional instability. One of the most practical strategies for preventing elder abuse is to arrange for day care or respite care. Many families and caregivers are unaware of these services or assume, often incorrectly, that they are prohibitively expensive. Individual or group counseling, support groups, basic instruction in caregiving skills, and stress management programs can be very helpful.

Hospital and nursing home staffs are not immune from the stresses that lead to an abusive pattern of behavior. Violence and abuse are, to a large extent, learned behaviors. However, people can also model positive behavior. Physicians can and should be instrumental in cultivating the appropriate personal attitudes. The physician who consistently demonstrates a kind, compassionate, patient attitude can exert a tremendously positive effect

Table 2. Stress reduction strategies for caregivers

- · Ask for assistance
- · Get regular exercise
- · Limit caffeine and alcohol intake
- · Schedule periods of quiet time
- · Listen to soothing music
- · Find a close confidante
- Attend a support group
- Arrange respite care before a crisis develops
- · Take a class in caregiving skills
- Read or listen to positive books on tape

on staff and family members.

Physicians can also help reduce the incidence of abuse by teaching (and practicing) stress management techniques (Table 2). Regular exercise, adequate sleep, avoidance of excessive amounts of caffeine and alcohol, daily quiet time or meditation, and a sense of humor are healthy and effective measures in stress control. Finally, one of the most crucial steps anyone can take to reduce the risk of elder abuse is to be a sympathetic listener. The daily frustrations of caregiving can be eased by talking to a supportive, nonjudgmental listener. Listening takes time and is rarely reimbursed, but the rewards of good listening are profound.

Conclusion

Stress, exhaustion, and frustration will always be a part of the caregiving experience. By recognizing the early warning signs of excessive stress, physicians can guide and direct caregivers toward the help they need. With appropriate assistance from community resources, consistent moral support, and good coping skills, families and professional staffs can achieve a healthy balance and perspective. Caring for our most vulnerable patients can then become a labor of love.

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Physicians' Legal Responsibilities to Victims of Domestic Violence

Wanda G. Bryant and Sondra Panico

Physicians generally are reluctant to identify and assist patients trapped in abusive relationships. In one study of the medical profession's response to domestic violence, 75% of the women who sought treatment were treated only for their physical injuries although most of them either eventually told their physician about the source of the violence or suspected that he or she knew. Only 25% of the women discussed the battering with their physician and on such occasions the doctor just listened, taking a neutral or noncommittal stance. Although advice was sometimes given, referrals were seldom made.

Every professional who comes in contact with a battered woman has a responsibility to provide the information that may allow her to end the abuse in her life. Doctors, lawyers, social workers, advocates, teachers, and employers all share the responsibility of ensuring that a battered woman who needs help knows where to receive such help.

Physicians are in a unique position because, outside of the family, they are often the first persons the battered woman sees. Victims of domestic violence suffer injuries that force them to seek medical attention, but victims may not have thought about action beyond this initial

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step. Very often, victims fear not being asked about the source of injuries even more than they fear being asked. Because of their unique position, doctors need to take a proactive role in inquiring about the source of a woman's injuries, whether from physical or sexual abuse, and about the identity of the abuser. Physical injury is the most evident sign of abuse, and a proper inquiry regarding the source of injury is necessary to any medical diagnosis or treatment. Nevertheless, physicians need to be sensitive in their questioning so that victims feel comfortable sharing personal, humiliating information. Certain types of injury or the recurrence of injuries to a particular patient may indicate violence, but the mere prevalence of domestic violence in our society is enough to justify routine inquiry of all women patients in emergency, surgical, primary care, pediatrics, prenatal, and mental health settings.

Documentation

Once the patient has described her injuries and their cause, it is essential that the doctor thoroughly document all statements and all physical examination findings. There are three further tasks physicians should perform before completing an examination of known or suspected victims of domestic violence. First, they should assess the present safety and risk of future harm to the patient and her

family. Second, they should make available in the office posters and other literature about domestic violence; this indicates to patients that the doctor is sensitive to issues of domestic violence. Third, doctors should familiarize themselves with resources available to victims of domestic violence and have an updated referral list of those resources (see *Health Watch*, page 413, and related article, page 440).

It is imperative that the medical records be thorough and accurate, particularly since they may be used in future criminal prosecutions. Well-kept records provide the best assistance that the medical profession can give the legal profession in seeking justice for battered women. Well-documented medical records are vital to preventing further abuse. They provide concrete evidence of the abuse and are essential for any criminal or civil case against a batterer.

In order for medical records to be admissible in court, the doctor may be required to testify that the records were made in the ordinary course of business, at the time of the examination or interview, in accordance with routinely followed procedures, and that the records were properly stored and maintained and access to them was limited to professional staff. Physicians should document their diagnosis and treatment, including any history given by the victim that affected diagnosis or treatment. Information conveyed and materials given to the

patient should be noted, as well as the patient's decision regarding whether or not the patient allowed the physician to take further action.

Composition of Records

The doctor's records should include:

- the chief complaint and description of the abusive events, using the patient's verbatim descriptions;
- a detailed description of the injuries;
- the doctor's diagnosis, including origin of injuries; and
- results of laboratory tests and other diagnostic procedures.

As a part of a well-documented record, the doctor should include color photographs of any visible injuries to the patient taken before medical treatment is administered, if possible (see related article, page 423). The photographs should be taken from different angles with a coin or a ruler or other object included to indicate the approximate size of the lesion. The patient's face should be included in at least one of the pictures. At least two pictures of every major lesion should be taken. Photographs should be marked clearly with the patient's name, location of injury, names of photographer, and other people present. If possible, a videotape of the patient should be taken. Physicians who follow these recommendations will provide records of great value in preventing future abuse and in preparing for legal proceedings against an abusive partner.

Legal Responsibility to Report Domestic Violence

The medical and legal communities sometimes question whether doctors should be required to report domestic violence to law enforcement or other protective agencies. Under North Carolina law (NCGS § 7A-549), all professionals, including doctors, are required to report incidents of suspected child abuse. This mandatory reporting statute supersedes the confi-

dentiality of the doctor-patient relationship (NCGS § 7A-551). Doctors are also required to report elderly or disabled adult abuse, and again, this requirement supersedes doctor-patient confidentiality (NCGS § 108A-102).

In North Carolina, domestic violence covers a number of criminal offenses (including marital rape) for which an abuser can be prosecuted; yet, there is no requirement to report. However, physicians should be aware of North Carolina General Statute 90-21.20 (see sidebar). This statute does not specify domestic violence as a category requiring reporting, but it clearly places upon physicians (and others) the responsibility of reporting serious injuries resulting from crimi-

nal acts of violence. Physicians should report to a law enforcement agency all wounds or injuries that fall within the bounds of the statute. However, physicians should be sensitive to the dynamics of domestic violence relationships and make sure that the victim is informed when a law enforcement report is made.

Because there are no judicial interpretations of this statute, the legal consequences of its violation by a doctor or hospital are not clear. However, under the common law, when a statute enacted in the public interest commands an act to be done or proscribes the commission of an act, and no penalty is expressly provided for its breach, the violation may be punished as a misdemeanor [State v.

90-21.20. Reporting by physicians and hospitals of wounds, injuries and illnesses

- (a) Such cases of wounds, injuries or illnesses as are enumerated in subsection (b) shall be reported as soon as it becomes practicable before, during or after completion of treatment of a person suffering such wounds, injuries, or illnesses. If such case is treated in a hospital, sanitarium or other medical institution or facility, such report shall be made by the Director, Administrator, or other person designated by the Director or Administrator, or if such case is treated elsewhere, such report shall be made by the physician or surgeon treating the case, to the chief of police or the police authorities of the city or town of this State in which the hospital or other institution, or place of treatment is located. If such hospital or other institution or place of treatment is located outside the corporate limits of a city or town, then the report shall be made by the proper person in the manner set forth above to the sheriff of the respective county or to one of his deputies.
- (b) Cases of wounds, injuries or illnesses which shall be reported by physicians, and hospitals include every case of a bullet wound, gunshot wound, powder burn or any other injury arising from or caused by, or appearing to arise from or be caused by, the discharge of a gun or firearm, every case of illness apparently caused by poisoning, every case of a wound or injury caused, or apparently caused, by a knife or sharp or pointed instrument if it appears to the physician or surgeon treating the case that a criminal act was involved, and every case of a wound, injury or illness in which there is grave bodily harm or grave illness if it appears to the physician or surgeon treating the case that the wound, injury or illness resulted from a criminal act of violence. (emphasis added)
- (c) Each report made pursuant to subsections (a) and (b) above shall state the name of the wounded, ill or injured person, if known, and the age, sex, race, residence or present location, if known, and the character and extent of his injuries.
- (d) Any hospital, sanitarium, or other like institution or Director, Administrator, or other designated person, or physician or surgeon participating in good faith in the making of a report pursuant to this section shall have immunity from any liability, civil or criminal, that might otherwise be incurred or imposed as the result of the making of such report.

Bishop, 228 NC 371, 45 SE2d 858 (1947)]. This common law rule has been applied by a trial court to impose liability on a school teacher for failing to report child abuse.

The mandatory reporting statute only applies to serious, violent crime. There is a very broad category of visible injuries requiring medical treatment that do not fall within the reporting requirements of NCGS § 90-21.20. The question of whether there should be a statute specifically requiring doctors to report domestic violence is a controversial one. Currently, only two states (California and Kentucky) have such laws, and it is unclear whether they protect the safety of competent adults or provide victims with needed resources. Many physicians feel that a crucial part of their relationship with their patient is the assurance that their communications will remain confidential. If a battered woman is to feel comfortable in disclosing her victimization, she must have a trusting relationship with her doctor. If a doctor is required to immediately report any abuse she reveals to him, such a relationship will never be created.

In addition, it is unclear whether mandatory reporting of domestic violence will actually reduce its prevalence. If a mandatory reporting statute were to be enacted, we would need a system to deal with the reports and with safety issues for the victim, otherwise mandatory reporting would be ineffective. Currently, since doctors are only required to report serious injuries, they can and should in other cases inform the battered woman about available resources and give her the option of using them when she is ready, rather than have law enforcement take all control away from her. In this way the victim can decide when to contact law enforcement or when to leave home, based on her own assessment of the danger to herself and her children.

The empowerment strategies taken with battered women differ greatly from the protective services approach taken with children or the adult disabled and elderly.³ In cases of child abuse, professionals are required to report in order to protect the child and remove him or her

from a dangerous situation (see related article, page 404). Domestic violence, on the other hand, produces a different type of victimization. The key to ending a battered woman's victimization is to empower her to take control and make decisions regarding her own safety. Requiring professionals to report only further reduces women's control over their own lives. It is more effective for doctors to provide resources and to reinforce women's decisions.

Physicians should be knowledgeable about the Domestic Violence Act (North Carolina General Statutes Chapter 50B), which enables women to obtain civil protection orders against batterers and about the community services available to bat-

"If a battered woman is to feel comfortable in disclosing her victimization, she must have a trusting relationship with her doctor. If a doctor is required to immediately report any abuse she reveals to him, such a relationship will never be created."

tered women. The doctor may be the first place the woman turns for help; no doctor should ignore this opportunity to provide information on the resources available to the victim.

Some professionals believe that physicians should be required to report domestic violence. They argue that, since domestic violence is a crime, it will only be curtailed when doctors report it to the authorities. They do not think that reporting will increase the risk of abuse toward the woman because the batterer will blame the doctor, not the woman for the disclosure. In addition, battered women may be as vulnerable as any abused child and may need protection as much.

The child abuse reporting law in

which the physician-patient privilege is superseded by the duty to report, NCGS § 7A-551 says:

"Neither [shall] the physician-patient privilege...be grounds for excluding evidence of abuse or neglect in any judicial proceeding (civil, criminal, or juvenile) in which a juvenile's abuse or neglect is in issue nor in any judicial proceeding resulting from a report submitted under this Article, both as said privileges relate to the competency of the witness and to the exclusion of confidential communications."

In State v. Etheridge, 319 NC 34, 352 SE2d 673 (1987), the North Carolina Supreme Court clarified § 7A-551 by saying: "[T]he legislature, in balancing the need for confidential medical treatment against the need to protect child victims, opted to provide the broadest possible exceptions to the physician-patient privilege."

If doctors were required to report domestic violence, a similar statute would need to be implemented. Its sole purpose would be to punish batterers without regard to the woman's own struggle to control her life and leave when she is ready to do so. Perhaps this would reduce the prevalence of domestic violence, but it might also result in women not disclosing to medical professionals and not seeking support for fear of being reported to law enforcement. Rather than assisting the woman in stopping the violence in her life, such a statute could result in women remaining more isolated and not seeking resources that could facilitate leaving an abusive relationship.

One pitfall doctors should be wary of: A battered woman may tell the doctor she wants to leave an abusive relationship and has made the decision to leave but later reconsiders her decision. When the woman then returns to the doctor after her next injury, it is vital that the doctor not judge or criticize her decision to stay in the abusive relationship, but continue to provide her with resources she will need when she decides to leave (see related article, page 434).

Physician's Need for Increased Involvement

Mandatory reporting may not be the most effective means of assisting individual victims of domestic violence, but it is clear that doctors must do something. They should not turn their backs to the victims of domestic violence by ignoring patterns of injury that indicate abuse. They should proactively provide victims with resources such as telephone numbers of domestic violence shelters, rape crisis centers, etc. Doctors should have telephone numbers for the sheriff's department and the Office of the Clerk of Court available for victims wishing to obtain a protective order. Doctors should regard it as a professional obligation to

assist battered women because by not doing so they may indirectly increase the risk of more severe abuse.

From a legal standpoint, physicians should make it their duty to document any injuries to and any statements by the victim so that if a case goes to court the evidence of abuse will be strong and clear. Furthermore, the better the documentation, the less likely it is that the doctor will have to give lengthy testimony at trial. Well-documented medical evidence of physical abuse is more likely to result in pleas of guilty prior to trial. Accurate and detailed records, properly maintained in the regular course of business, largely speak for themselves so that the physician may not need to present actual testimony.

Conclusion

Physicians are in a unique position to observe the cycle of domestic violence and to intervene, if not end it. The dynamics of abusive relationships are very complex, and victims may repeatedly return to the relationship. However, by documenting and treating injuries and reporting serious injuries to law enforcement, the physician assists a victim in the medical arena and in the criminal justice system. Also, by providing a victim with referrals and resources, physicians broaden the woman's spectrum of choices and increase the possibility that she will leave an abusive, potentially life-threatening relationship.

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Injuries

Description, Documentation, Evidence Issues

John D. Butts, MD

A physician, encountering a patient with traumatic injury, has a first duty to determine what threat, if any, the injury poses to the patient's health, and to initiate appropriate treatment. In addition, the physician must evaluate the historical report of what led to the injury in order to determine whether the degree of injury, its nature, and appearance are consistent with the explanation offered. Injuries thought to have been inflicted intentionally may need to be reported to appropriate legal or social authorities. There is as well a responsibility to ensure that the patient does not re-enter a situation where further injury is likely.

During the course of examination the physician must adequately document the number, location, and appearance of any identified injuries so that an accurate delineation of the trauma can be offered at any subsequent proceeding, legal or otherwise. Such documentation is necessary not only to substantiate charges of abuse or neglect, but to justify the report the physician makes. Any evidence collected during the physician's evaluation and treatment of the patient must be handled in such fashion that it can be used in subsequent legal proceedings. This paper will briefly review the process by which these goals should be accomplished.

Descriptions

The exact location of each injury should be noted in relation to fixed body landmarks and standard anatomical regions. For example, a bruise might be described as being on "the right upper chest above and lateral to the right nipple." A burn might be described as situated in "the left lower abdominal quadrant." Injuries to the vagina or anus can be located on a clock face: "A two-inch laceration of the lateral vaginal wall at three o'clock."

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Gunshot entrance and exit wounds are more specifically located by giving measurements from the top of the head or bottom of the heel, left and right of midline, front or back. It is important that anyone reading the description be able to easily tell the location of a particular injury in relation to other injuries and to the body as a whole.

Individual injuries, after being located, should be described in terms of their length, width, shape, color, and depth if appropriate. Evidence of healing reaction (or lack thereof) should be noted, as well as the presence or absence of accompanying swelling.

During evaluation, be on the alert for injuries that show a distinctive pattern consistent with or suggestive of the imprint of a recognizable object—so-called "patterned injury." Unintentional injuries tend to be nonpatterned; the recognizable imprint of an object in a wound raises the likelihood that the injury was inflicted or may make it virtually certain, depending on the nature of the object involved and the type of wound (see related article, page 404).

In describing wounds, straightforward nomenclature should be used. Injuries should be characterized by their shape, size, and color. The shape of a bruise or a laceration gives an indication of the object that inflicted the wound. Elongated objects striking the body tend to produce elongated bruises. Thin tubular or rod-like objects may produce parallel bruises because the rounded surface striking the skin forces blood laterally, leading to hemorrhage at the margins rather than directly at the point of impact. Thus, for instance, looped cords often leave distinctive curving parallel bruises that clearly point to the nature of the striking object. By the same token, hand slaps, belts, and other objects with specific surface features may produce clearly recognizable pattern injuries (Fig. 1, page 425).

The color of a bruise reflects its age. Fresh bruises (less than 24 to 48 hours old) are generally red-blue, then deep blue to purple. Within one to three days they begin to show green-brown discoloration, first at the margins. The color change progresses to yellow until the bruise is resorbed, moving from the periphery toward the center of the bruise. Most bruises

resolve within one to three weeks, depending on size and location. Larger bruises take longer to resolve than smaller ones, and bruises in less vascular areas, such as lower extremities, take longer to resolve than those in more vascular areas, such as the face.

It is important to note the initial swelling that accompanies bruises and other injuries. Edema generally reaches its maximum during the first 12 to 24 hours of an uncomplicated injury and then begins to dissipate. A swollen, red-blue bruise indicates a relatively recent blow, whereas a blue-red flat bruise with green-brown margins is several days old.

The term "laceration" should be used to describe injuries that result from crushing or tearing forces—blunt force injuries. Lacerations have irregular margins, often with abraded edges. Tissue bridges may cross the depths of the wound, and the edges of the wound may be devitalized (Fig. 2). Lacerations occur most commonly when the skin is crushed between underlying bone and a hard object or surface, either as a result of a blow to the body or the body impacting a hard object or surface; thus they are most common over bone. The same impact that produces a laceration on the scalp may cause a bruise on the back, abdomen, or arm where cushioning tissue can absorb the force of impact and prevent a break in the skin. A person struck on the head with a board may have a laceration from that impact, whereas a similar blow to the chest would cause a bruise. Lacerations may also occur when the skin is caught and pulled or sheared.

Like bruises, lacerations may show patterns indicating the type of object that caused the injury. Long objects tend to produce long lacerations. Edges or areas of abnormality on the surface of objects striking the skin may cause recognizable patterns.

Abrasions or scrapes are the result of tangential impact. The direction of the movement between the area of skin injury and the causative object or surface is often apparent in the linear character of the abrasion.

Sharp objects produce "cuts" or "incised wounds;" such wounds should not be called lacerations. Limiting the use of the term laceration to blunt injuries better defines the type of objects that could have caused an injury. When laceration is used nonspecifically, confusion can arise. In assaults, knives are the most common cutting agents, but glass or sharp bits of metal may also produce cuts. Incised wounds have sharp, clean margins and lack the scraping, abrading, or bruising seen in lacerations. Tissue tends to be cut cleanly the full depth of the wound and no interconnecting tissue bridges are noted. A stab wound is an incised wound that is deeper than it is long.

Certain weapons or objects may produce complex wounds that have features of both blunt and sharp force injuries. Axes and machetes, for instance, both cut and crush. Such "chopping" or "cleaving" injuries are very distinctive and should immediately alert the examiner as to the nature of the offending implement.

Human bite marks usually cause an elliptical bruise in which individual tooth marks may or may not be visible (Fig. 3).

Breaks in the skin are rare with human bites but are typical of animal bites. The dentition of the perpetrator of the bite may be matched to the wound by a forensic odontologist but only if the bite mark is adequately documented by photography. A fresh bite mark may be swabbed for blood group substance, using a cotton swab moistened with sterile water. Let the swab air dry and then package appropriately.

Gunshot wounds should be described so as to differentiate entrance from exit wounds and to provide evidence of range of fire. Entrance wounds tend to be round or elliptical with a margin of abrasion (Fig. 4A); exit wounds tend to be larger, more irregular, and lack marginal abrasions (Fig. 4B).

When the muzzle of a gun is within a few feet at the time of discharge, powder residue may be deposited around the wound. At near contact range, sooty deposits and searing may be noted (Fig. 5A); at slightly longer distances minute lacerations of the skin—"stippling or tattooing"—may be produced by the impact of larger burned or unburnt powder particles (Fig. 5B). Wounds produced by tight contact with the muzzle may show tearing or splitting of the edges, as well as powder residue within the wound track.

Burns merit careful description beyond simply indicating their presence. They may be described in terms of redness, blistering, and deeper coagulation of tissue. Careful note should be made of size, shape, and any possible patterns. Hot objects used to punish or torment people, particularly children, may produce marks distinctive enough to allow identification (Fig. 6). The presence of pour patterns should be noted. Burn injuries are particularly common in young children in whom a significant percent of burns are, in fact, inflicted. They may be due to immersion, or partial immersion, of the child into hot water. By noting the exact distribution of the burn, it may be possible to reconstruct how it occurred or was inflicted.

Documentation

Documentation of the location and appearance of wounds is best accomplished with diagrams and photographs. Standard anatomical diagrams, if available, are best, but even handdrawn diagrams contained within the medical record will help tie individual descriptions to specific wounds and aid in the subsequent interpretation of photographs.

There is nothing that captures the extent and nature of a wound better than a good photograph. It is, unfortunately, possible to argue away or minimize descriptions, impressions, and opinions, but photographic documentation is hard to dismiss. Photographs also supplement inadequacies of written descriptions and the observer's memory. Each individual injury should be photographed, first at a sufficient distance from the body to include recognizable anatomic landmarks that will locate the injury, then close enough to show detail. Photographs should be taken with the particular detail the examiner wants to preserve in mind. If the photographs are taken by other parties, it is important to convey to them exactly what you need to







Fig 1 (left): Patterned bruise of thigh from a belt buckle used to inflict injury. Note correspondence of bruise to outline of buckle, particularly the double prong. Fig 2 (center): Laceration of scalp with irregular, abraded margins. Hair has been shaved from around the wound. Fig 3 (right): Bitemark on flank of infant. Note blue/red elliptical shape and individual tooth marks.

"It is, unfortunately, possible to argue away or minimize descriptions, impressions, and opinions, but photographic documentation is hard to dismiss."





Fig 4A (left): Bullet entrance wound. It is round with marginal abrasion. Fig 4B (right): Bullet exit wound. It is irregular without marginal abrasions.







Fig 5A (left): Loose contact bullet entrance wound with heavy powder sooting. 5B (center): Intermediate range bullet entrance wound (inches to several feet depending on type of powder in cartridge) with prominent stippling (tattooing). Fig 6 (right): Patterned burn on arm of child from end of butane lighter.

document so that you do not end up with a photograph of the wrong thing.

In taking photographs, the plane of the back of the camera should be parallel to the plane of the wound itself. A scale should be included in close-ups to help viewers appreciate the size of the injury. A scale also allows comparisons between the wound and some object or weapon and, when necessary, allows preparation of life-size photographs for one-to-one correlations. The color of many injuries is an important part of their character, so color photography is standard. Black and white photography should be avoided if possible, but any photograph is better than none.

Polaroid or instant photography is used by many practitioners, especially those who only occasionally need to take such photos. It has some serious limitations, the most important being the small size of the photos produced and the difficulty in getting good close-ups. Its advantages are that the process is relatively simple, and one receives immediate feedback about whether the injury has been properly captured. It is also unnecessary to complete a whole roll of film before processing. Security and confidentiality issues are also avoided since the film does not go to an outside processor. The photographs may be marked immediately with appropriate identifying names, numbers, and initials of the examiner, assisting in preserving the chain of evidence.

The 35 mm camera format is the most flexible and the one most often used by law enforcement officers and medical practitioners who have a relatively high volume of work. Good lighting systems, easily interchangeable lenses to allow sharp close-ups, and through-the-lens monitoring and focusing are great advantages. Problems of parallax, the bane of view-finder focusing, are eliminated. The costs of film and processing are economical and copies and enlargements are easily made. Large medical centers may have a photographer and in-house photo processing available. When involved, law enforcement agencies may provide photographic support.

Regardless of the photographic method used, wounds should be cleaned before being photographed unless there is something in the initial appearance that requires documentation. Some initial alteration of a wound may have occurred as part of the patient's treatment before photography, but even wounds that have been treated should be photographed.

Preservation of Evidence and Chain of Custody

During the evaluation and treatment of a patient a physician may be called on to assist in the collection of items of evidence. There is a legal concept called the "chain of evidence or custody," which physicians should understand in order to gather items that will later have probative value. The "chain of evidence" documents that an item to be introduced at a trial or proceeding is in fact what it is supposed to be. For example, the results of a blood test for alcohol will be admissible in court only if it can be demonstrated that the sample tested came from the person it was supposed to have come from, and that the test was performed properly.

This concept is not alien to medicine—in fact, it is usually assumed to occur in the daily treatment of patients. Take, for example, the change in insulin dose made after receipt of a blood glucose result on a patient. The value reported by the laboratory is assumed to represent the level of glucose in the patient's blood at the time the test was taken. That assumption, however, is only valid if the result can be traced back to the patient through an appropriate chain of custody. The blood must, in fact, have been drawn from the appropriate patient into a labeled container bearing the patient's name and appropriate identification numbers and

have been transported to the laboratory in a fashion that did not render the test result unreliable. The test must have been performed by a competent technician using appropriate and accepted methods and the results transcribed and forwarded accurately.

Courts follow a similar, though more compulsive, reasoning in considering the admissibility of any item of evidence. To anticipate this requirement, a written record of the chain is standard practice. In the hospital setting, the demonstration that a clinical sample was collected and subsequently handled according to accepted standards of practice or procedure may be sufficient to allow its admissibility in a legal proceeding. However, when items of evidence or samples are collected to be sent to a forensic laboratory, they should be entered into a recorded chain so that there can be no later question regarding their authenticity.

At minimum, any item of evidence should be placed in a container labeled with the patient's name and identifying number, the date and initials of the collector, and the nature of its contents. The container can be a specimen jar, box, or envelope—anything that can be sealed and suitably hold the specimen or item collected such as a paper bag for clothes,



Fig 7: Envelopes and specimen containers sealed with tape and initialed in order to render them tamper-proof.

an envelope for hair or a bullet. If law enforcement representatives are present, the item can be turned directly over to them and a record of the transaction entered on a chain of custody form, which is ordinarily maintained by the law enforcement agency. The physician should also note on the patient record that the evidence was collected and transferred.

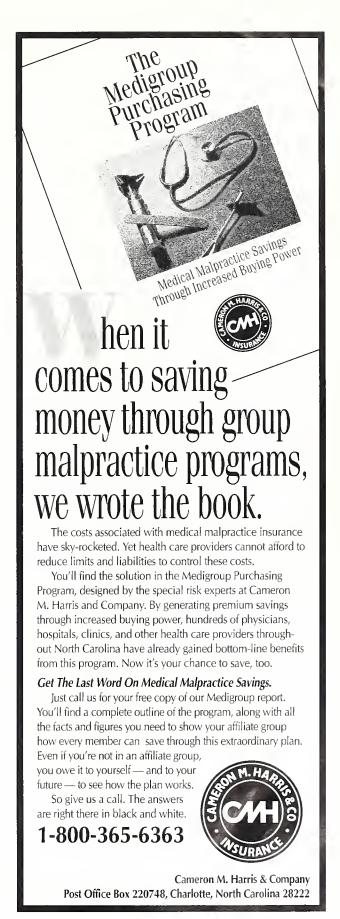
When no law enforcement representative is available, the item(s) must be preserved until they can be turned over. This should be done in such a fashion that, when transferred, the individual passing them on can state that their condition at the time of transfer was the same as when collected. This may be accomplished by sealing the container with tape or other "tamper-proof" material, and then placing it in a safe location (Fig. 7, below). When subsequently retrieved, the collector can note the absence of evidence of tampering and avow that it has not been altered or damaged prior to being turned over.

Each individual in the chain must similarly ensure that the item remained safe while in their care and document to whom it went next. Any break in the chain may render the item unusable or inadmissible in subsequent legal proceedings. It is logical to keep the chain as short as possible, to minimize both the chance that something will happen to the evidence and the number of individuals who will need to testify regarding the chain. Ideally, the collector turns the evidence over directly to a law enforcement agent. Physicians who often have to collect evidence should adopt standard procedures for collecting and preserving such evidence and should have appropriate containers available.

Clothing that has been damaged by knives, bullets, or other objects used to inflict wounds may prove important as evidence. It should be saved and placed in clean paper bags marked with the patient's name, ID number, and collector's initials, and sealed by taping or stapling.

An evidence collection kit for sexual assault examinations is available from the North Carolina State Bureau of Investigation. It contains appropriate envelopes, slides, tubes, etc., as well as instructions for obtaining appropriate samples. The kit is enclosed within a box to be sealed with tape after materials have been collected appropriately and placed in it. (For information about the kits and an instructional videotape, contact: Serology Section, NC State Bureau of Investigation, P.O. Box 2000, 3320 Old Garner Road, Garner, NC 27529-2000, 919/662-4500.)

Physicians may think that the careful recording and description of injuries, the photographic documentation, and the collection of evidence lies outside the realm of medical practice. But who is better equipped to perform the physical examination of an injury victim and to document the findings, and who has a better opportunity? Failure to follow through with these responsibilities may lead to a miscarriage of justice or even the repetition of an injury to the patient.



Why Don't Doctors Identify and Refer Victims of Domestic Violence?

David H. Gremillion, MD, FACP, and GiGi Evins, MS IV

Domestic violence is a major public health problem.1 Since many of its victims seek help in primary or emergency care settings, physicians should be sensitive to this problem and maintain a level of awareness that facilitates diagnosis and referral of victims. Physicians are in an ideal position to be helpful. Their rapport with patients, the intimacy of their communication with them, their awareness of current and past trauma can bring hidden cases into the open. Despite their great opportunity, doctors rarely ask their patients directly about domestic violence and even when they encounter undeniable evidence of domestic violence, their written documentation is often either absent or too vague to be meaningful.2

Physicians have become involved in the problem of domestic violence at an organizational or public level, but they still resist involvement in the one-on-one patient encounter. Several investigators have recently explored the barriers to meaningful involvement of physicians with their patient-victims. The barriers are as complex and varied as the issue itself, and range from impediments due to personal experiences to a lack of familiarity and inadequate information about what to do once the problem is detected.

Patients want their physicians to routinely inquire about the possibility of abuse. A survey of 164 patients at public

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and private clinics found that 78% of respondents favored routine inquiry but that only 7% had ever been asked.³ Many studies document that doctors and nurses detect spouse abuse in only 10%-50% of the instances where it exists (Table 1, at right). Nevertheless, attitudinal surveys indicate that the vast majority of physicians themselves believe that they have much to offer and that they should routinely screen for spouse abuse,4 but a number of professional, personal, institutional, legal, and societal deterrents (Table 2, at right) leads to reticence by physicians. A common theme voiced by doctors is a sense of inadequate training and support. In this review we analyze those barriers and propose strategies for enhancing doctor participation in helping the victims of domestic violence.

Sociocultural Barriers

Societal characteristics can place families at risk for violence and at the same time impede physicians from interceding on the victim's behalf. Those who have examined the relationship between violence and the American macrosocial and familial contexts postulate that societal structure and ideology are conducive to domestic violence. Physicians are not immune to these potentially harmful cultural norms.

The fact that violence is woven into our society reinforces the acceptance of domestic violence and perpetuates the overall prevalence of violence in society.

Criminal violence and socially legitimate violence (punishment) are visible parts of contemporary culture. Violence permeates society through graphic media, movies, and television. Physicians, like everyone, are susceptible to the pervasive desensitization that occurs.

Family norms contribute to societal tolerance of domestic violence. Early and continuing experience with violence legitimizes violence of all types, but especially intrafamilial violence. By using physical punishment parents teach their children indirectly that love and violence, beneficence and pain are fused. This projects a moral right to hit other members of the family.5 According to one theory, domestic abuse reflects and reinforces established historical hierarchies of inequity.6 For example, society's traditional support of male dominance in marriage may reinforce the husband's authority—even abusive authority—and the victim's powerlessness. On the other hand, violence in society and family relationships may derive, at least in part, from the violent behavior of women, too.7

Unaware of the unspoken rules that govern a family's behavior, physicians may find it difficult to believe that "normal" men and women can be a part of secret brutality. Social norms suggest that intimate partners, being consenting adults, are responsible for their own conjugal experiences. This may explain society's tolerance of violence in intimate relationships even while it expresses outrage at the abuse of children and elders.⁸

Many cultural beliefs and cryptic

societal rules threaten the physician's ability to correctly diagnose and treat victims of domestic violence. First, some professionals accept the notion that victims are responsible for the violence that is directed against them.9"Blaming the victim" is a common but subtle theme in contemporary society. Physicians may conclude that the victim's psychiatric makeup or personality could lead to abuse and the inability to leave the relationship. This paradox reflects an unconscious avoidance of the real nature

of violence. It is possible that the cultural context in which physicians are raised makes them unlikely to recognize and assist in the problem of domestic violence.

Physicians need to explore and understand their personal concepts of power and control as a first step toward providing appropriate care. Education and improved awareness of their own beliefs about victimization will allow physicians insight into victim experiences. Once sensitized to risk factors for family violence, they will be more likely to understand and recognize it.

Professional Barriers

There are important professional deterrents to physician involvement. Some of these relate to the rigid nature of clinical practice and others to physician misconceptions about patient wishes, confidentiality, and the role of medicine in domestic violence. A common complaint of doctors is that they received inadequate education during medical school and postgraduate training.

Physicians often say they do not have time to inquire about domestic violence. Competing clinical priorities and misconceptions about the real prevalence of violence in their practices creates the impression in doctors that pursuing it is "not a good investment of time." In one

Table 1. Detection of abuse by physicians and in retrospect

Study	Rate of detections	tion by: Retrospect	Setting
Hamberger, LK et al²⁴	1.5%	22.7%	community practice unselected
Stark, E et al ²⁵	2.8%	16%	emergency room, unselected
McLeer, SV et al ²⁶	5.6%	30%	emergency room, unselected
Goldberg WG, et al ²⁷	5%	22%	emergency room, unselected
Ferris, LE et al ²⁸	8.5%	17%	community practice, unselected
Bergman, B et al ²⁹	18%	100%	emergency room, select sample of proven victims
Rath, GD et al ³⁰	4%	16%	community practice

study, 71% of physicians considered this the key deterrent. 10 Furthermore, the dialogue that follows the uncovering of violence may be lengthy and open-ended—and uncomfortable for physician and patient. Physicians often acknowledge that intervention may save time in the long run, but they have trouble incorporating this preventionminded concept into the context of a given clinical encounter.

Physicians say their skills for dealing with domestic violence are inadequate. Medical schools and primary care training programs devote limited attention to the issue. A 1989 survey disclosed that 47% of medical schools offered programs of instruction,11 but the mean number of sessions was 1.5 and the mean number of hours per session, 1.9. Only 8% of physicians in one study said that they had received good training about domestic violence.10 Physicians are not the only ones who receive inadequate training. A recent study of 1,521 practicing clinicians from various disciplines documented that more than one-third received no education about child, elder, or spouse abuse.12

In many communities the physician may have a professional relationship with the abuser as well as the abused. The ambiguity of re-

Table 2. Barriers to physician involvement with domestic violence

Contemporary social issues:

Societal tolerance of violence Desensitization through exposure Implicit and explicit social norms Power inequities in relationships

Personal factors:

Gender bias
Personal history of abuse
Idealized concepts of family life
Privacy concerns
Sense of "powerlessness"

Professional factors:

Time constraints Inadequate skills Professional relationship with abuser Professional "detachment"

Institutional and legal factors:

Fear of legal reprisal Limited institutional resources Inadequate or unclear policies Loss of insurance

sponsibilities combined with a wish to serve as dual advocate may have a paralyzing effect. Inaction by a physician caring for both partners may have the unfortunate effect of reinforcing the abusive relationship and amplifying the violence. The model of the doctor as a detached and objective observer may devalue and even discourage intuitive and emotional input in clinical encounters. This model has served to

protect physicians from the awareness of their own feelings and those of their patients. ¹³ The pattern of disciplined thinking, although effective in clinical crises and diagnostic challenges, is a formidable barrier to recognizing abuse. Furthermore, the lack of acknowledgment contributes to the victim's cycle of disempowerment and loss of control.

Although most patients want physicians to address the issue of domestic violence,³ physicians often perceive patients to be threatened by such inquiry. But the discomfort is mostly their own. Physicians often refer to fear of offending, concern about appearing to accuse the partner, and nosing into private matters as potential threats to an otherwise positive physician-patient relationship (see related articles, pages 434 and 440).

In addition to societal norms that sanctify the privacy of the family, the privacy of the physician-patient relationship may pose obstacles to open physician involvement. Time-honored principles of confidentiality and of patient autonomy give the patient a right to privacy and to self-determination about disclosure. This may place the physician in the difficult position of advocating for the patient despite an expressed or implied wish for privacy.

The professional deterrents that physicians encounter derive at least in part from lack of awareness, sensitivity, and training. Inadequate attention to domestic violence in medical schools produces graduates whose index of suspicion and basic skills are limited. Better curricula would cover the broad spectrum of violence in society and its relevance to the health care needs of patients. Such curricula would be progressive and complementary at each level including postgraduate training. Curricular components for residencies could address the unique opportunities for identification and intervention that lie within each specialty. Practicing physicians need continuing medical education courses developed to address their deficiencies of information and skills necessary to serve abused patients. Currently established or annual courses should routinely incorporate domestic violence as a presentation theme.

Personal Barriers

Personal attitudes and experiences contribute to lack of recognition and referral. Physicians identify with patients of similar backgrounds and this may lead to false assumptions. Those from backgrounds free of domestic violence may assume that patients from similar backgrounds are not at risk. Such attitudes and assumptions may lead to leaving domestic violence off the list of differential diagnoses.⁸

On the other hand, given the prevalence of family violence, many physicians have had personal experience of abusing or being abused. They may fail to diagnose in order to avoid personal discomfort. Sugg and Inui found that 31% of women and 14% of men physicians in their study group acknowledged previous abuse. ¹⁰

Some physicians, despite a desire to help victims of domestic violence, are inclined to hold back because they regard inquiry as an invasion into personal space.15 This attitude contrasts with the ease with which they inquire about other areas of patients' private lives. American traditions concerning privacy and the family separate the public sphere from the private, domestic domain. Such privacy beliefs may deter a physician's involvement in domestic violence because the very definition of family as private seems to forbid intrusion. Inquiring physicians risk uncovering moral or criminal violations of traditional ideals of family life. rather than bastions of love and support.

Physicians may try to preserve family "integrity" by denying the diagnosis of domestic violence. They may invoke the right of family privacy to justify their position that violence should be resolved within a relationship that is protected from the ethical codes and laws that govern the public sphere.14 This is a dangerous course for victims, since escalation often occurs if the cycle of violence is not interrupted. In order to identify domestic abuse physicians need to realize that abusive behavior is both a public and private injustice. It is subject to principles of justice and government through public laws defining criminal behavior.

Physician gender may determine attitude towards victims.16 Some female physicians avoid diagnosing victimization among their female patients; they identify with them and fear facing their own feelings of vulnerability and lack of control. Denial serves as an emotional shield for a doctor but it is a barrier to truth. This protective mechanism is most common with white, middle- to upperclass patients, reflecting the racial and socioeconomic status of most female physicians. Women physicians are more likely than men to be empathic toward victims of domestic violence and blame them less, in part because they are at greater risk than men. Female physicians understand that victims are not wholly responsible or in control of the abuse.17

Patients are more likely to disclose information to women, but most doctors are male (and not knowledgeable about domestic violence), which negatively influences the likelihood of disclosure.18 Male physicians are less interested in the issue of domestic violence than are female physicians,19 in part because they feel that victims have a negative view of men in general. These physicians hesitate to become involved because they feel that victims would not want to discuss the issue of domestic violence with them.20 Ironically, male physicians can have a greater impact by validating a woman's experience and speaking out against male violence toward women.

Another factor that influences the effectiveness of physician intervention is that doctors identify themselves as problem solvers. They are frustrated by their perceived powerlessness and loss of control when managing cases of domestic violence. These feelings of inadequacy are attributable to the recurrent nature of domestic violence and the fact that patients are ultimately responsible for their own cure. Physicians can lessen their discomfort if they recognize that their role is as validator, listener, and advisor. Physicians must avoid the pitfall of "rescuing" patients since this only sabotages the critical work that the patient must accomplish independently. The patient must reclaim a sense of control and determination to achieve desired life changes.21

Physicians can overcome the personal impediments to involvement through education and experience. Personal barriers, fears, and misconceptions are surmountable. At the least, if physicians recognize the prevalence of and learn about the natural history of domestic violence, their reasons for avoiding the issue will seem less important. Physicians can become comfortable with diagnosis, referral, and even specific counseling goals and techniques; they will find their fears diminish in comparison to the newly attained goals of rehabilitation and restoration of the self-esteem and personal productivity of their patients.

Institutional and Legal Barriers

Even when personal mechanisms allow effective discourse with a victim, physicians may confront substantial institutional barriers. These often relate to the lack of personnel, space, or policy. The administrative pressure for "productivity" (that is, high-volume, short-duration consultations) may preclude the type of reflective and thoughtful communication that leads to disclosure of stigmatizing clinical issues such as spouse abuse. Once a disclosure has occurred there may be a gauntlet of administrative procedures, limited capacities, and inefficiencies.

Unlike other clinical conditions where there are clear diagnostic and therapeutic guidelines, the disclosure of spouse abuse leads to no such clear pathways. Even with a nurse clinician or social worker on staff, the timing of violent acts and patient arrival in the emergency department may prevent a smooth transition to proper care. In 1991, the Joint Commission on Accreditation of Hospi-

tal Organizations mandated that emergency departments maintain domestic violence protocols.²² Despite this, a recent survey disclosed that 46% had none.²³ When they do exist such protocols may be inadequate or not properly updated with current numbers and contacts.

Inadequate shelter capacity is a common deterrent to referral. Nationwide, only two of five candidates can be accommodated in shelters. Also, the external scrutiny of hospital admissions may prevent using admission as strategy to protect patients.

To properly address institutional barriers there must be an organizational commitment to reducing them. Protocols for assisting victims of domestic violence should be available, and they should be current and functional. Hospitals that have a high frequency of domestic violence cases should hire nurse clinicians or social workers as resources for intervention and protocol maintenance.

Fear of "legal entanglement" may deter physicians from substantive questioning or documentation (see related articles, pages 418 and 423). In addition to the potential of time commitment as a witness, physicians often cite vulnerability to civil action by the abuser or even the abused. In addressing this factor Brown²⁰ noted that such concerns are not well founded and are surely balanced by the greater concern of liability for failure to diagnose and document. Even though a perpetrator may threaten legal action in an effort to further isolate the victim, physicians can protect themselves with carefully chosen clinical entries that convey the essential facts of the case but defer judgment to others. The phrase "victim alleges..." preserves the necessary information but allows others to determine whether the allegation is true or

false. Even with such innocuous statements, insurance companies may deny coverage to victims of domestic violence by calling it a "pre-existing, high-risk condition." Physicians, aware of this risk, may be reluctant to compromise a vulnerable patient's health care coverage. (For more on this, see article on page 392.)

Many institutions benefit by having a domestic violence task force or committee that analyzes and strengthens available referral resources and takes advantage of existing community resources. Hospital-based domestic violence intervention programs have been successful at many sites by providing ready access to well-trained practitioners. Because recognition of domestic violence may occur throughout all levels of the health care system, it is important to conduct regular educational sessions among the nursing staff and other hospital personnel.

Conclusion

The medical profession has entered a new era of involvement in the complex issues of violence in society, families, and intimate partnerships. We have recognized the clinical and economic dimension of domestic violence. Now we must analyze our attitudes about violence in general and our clinical encounters in particular. As we join the mainstream in the campaign against domestic violence we must become familiar with the personal, professional, societal, and institutional barriers to involvement. These must be addressed by society, by our medical schools, and by each of us in the context of our personal and professional lives. By overcoming these barriers we will develop our proper role as physicians in treating victims of domestic violence.

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Psychological Consequences of Battering

Implications for Women's Health and Medical Practice

Paige Hall Smith, MPSH, PhD, and David K. Gittelman, DO

Each year in the United States millions of women are battered by their male partners. Battering does not mean just physical assault—it includes the continuous use of physical and often sexual assaults along with verbally and emotionally abusive behaviors that become more severe and damaging over time. Batterers not only assault their partners, they also threaten, intimidate, and humiliate them, isolate them from family and friends, restrict their access to money and other resources, threaten the safety of children and other members of the women's families, and control women's activities outside the home. Batterers also use sex as a weapon—both rape and the withholding of sexual affection. Because of this complex set of behaviors, battering has been defined as a syndrome of control and entrapment that accompanies the use of physical force in intimate relationships.1 About 95% of its victims are women.^{1,2}

The physical, sexual, and psychological violence inflicted on battered women contributes to the development of serious health problems. Battering is the leading cause of injury to women and contributes to the development of irritable bowel syndrome, chronic pain, mis-

Health Education Center, Raleigh.

carriage, substance abuse, depression, anxiety, recurrent gynecological disorders, AIDS, and suicide. Not surprisingly, therefore, the health care system is often the first place battered women come seeking help. An estimated one million women seek emergency treatment for injuries related to battering, and between 22%-35% of all women patients using emergency departments are battered women. A high percent-

age (43%-65%) of women psychiatric inpatients have suffered physical or sexual abuse, and 40%-60% of women seeking care for chronic health problems have a history of child sexual abuse, rape, or battering.² Furthermore, battering may lead to self-abuse with medication, alcohol, or suicide.⁵

In this paper we will discuss the impact that victimization has on people generally, then consider the impact of battering on the health and well-being of women, and conclude with what the psychological consequences of battering imply for medical practice.

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Table 1. Persisting psychological effects of life-threatening trauma and lliness

- Loss of self-esteem
- · Negative views of self
- · Decreased personal control
- · Threats to autonomy
- Feelings of worthlessness and weakness
- · Perceptions of self as deviant
- · Increased feelings of vulnerability
- Decreased belief in a just world
- Increased anxiety about the future
- · Increased mistrust of the environment

Psychological Effects of Victimization

Life-threatening trauma and illness—war, rape, natural disaster, cancer—cause psychological effects beyond the initial traumatic event (Table 1, above). In addition to physical injury, the victims of battering and other types of trauma and illness lose self-esteem and have increased negative views of self and decreased feelings of personal control.^{6,7} Victimization may produce feelings of threatened autonomy, worthlessness, weakness, or even perceptions of oneself as deviant.⁶

Both the initial trauma and subsequent effects of victimization alter the way people relate to the world and think about themselves. Victims' beliefs are shattered—their sense of safety and invulnerability, self-worth, and belief that

the world is a just place where "people get what they deserve and deserve what they get." After life-threatening trauma or illness, people tend to mistrust the environment, be anxious about the future, worry about the risk of future trauma or illness, and believe that "bad things can and do happen to good people." From her work with trauma victims Dr. Judith Herman concludes that "traumatic events overwhelm the ordinary systems of care that give people a sense of control, connection, and meaning."^{7,p33}

Battered women often describe the psychological trauma as more painful and damaging than the physical trauma of their partner's assaults. These quotes from battered women⁸⁻¹⁰ illustrate this:

"It was harder to deal with the psychological pain of the abuse because there were no outward signs that people could see and understand. I couldn't explain the pain that no one could see."

"Well, abuse covers a lot of territory. It's not only physical abuse, its mental abuse. To me the physical abuse eventually stops. Bruises heal on the outside. But the mental part of it lasts. It's in the memory, like a replay. I don't think the scars on the inside ever really heal. They're there for a long time."

Women's Experience With Chronic Battering

Because battering consists of many different, repetitive, and continuous behaviors, it is better understood as a chronic rather than an acute condition (Table 2, at right). The physical pain and injury of physical assault represent "acute flareups" of an underlying continuous experience of physical and psychological degradation. Women exposed to chronic battering live with the ongoing fear of the danger that awaits them. Fear and loss of power ("disempowerment") are key aspects of battered women's experiences and a predictable result of the violence perpetrated by the men who claim to love

them. Women lose their self-esteem and identity. They may come to believe that they invited the abuse, that the humiliation is deserved, that they are to blame for the violence. 9,10,12

Research in North Carolina9,10 revealed that battered women feel unsafe, even in their own homes. They feel that they have no control over their lives, no power, and no protection. And because they often feel ashamed of what is happening to them, they hide the truth from others, including physicians. They are afraid to talk and often perceive themselves as trapped in the relationship trapped by the batterers' threats to kill them if they leave, by the hidden nature of the violence, and by their experience that available means of protection (police and social service systems) cannot guarantee safety and are inadequate. As the battering continues, women feel increasingly alone and abandoned. These quotes from battered women in North Carolina reveal their fear, sense of entrapment, and disempowerment:9,10

"Well, in my situation there was a lot of fear. I went to bed afraid and I woke up afraid the whole day through. Not knowing what he'd do. What he'd say—his reaction

always had me fendful and there was always a lot of fear. I just don't think a woman wants to live that way."

"Mine was fear and misery 'cause every day he'd put fear in me, 'cause he'd always threaten me saying that [if] I decided to ever leave he'd hunt me down like a dog and shoot me and the girls. And he knew I had nowhere to go, so I just had to stay there and put up with it."

"[H]e's taken away the right to sleep. The whole night. I set my clock every two hours so I can get up to make sure everything is okay...my body has adjusted over several months, I may get three hours of sleep."

"When I came [to the domestic violence shelter] I was even afraid to talk about it 'cause I was told for 14 years 'You don't say nothing to nobody'... [H]e threatened the girls, 'If you tell anybody such and such, or that daddy beats mama, daddy's gonna get ya.' And I was scared to talk. And my girls too."

How Battering Effects Women's Health and Well-Being

Psychiatric diagnoses assigned to battered women have evolved as psychiatric nosology and treatment have been refined and as research on battering has become more sophisticated. Older terminology used ill-defined personality characteristics, and psychiatric treatment was limited to analytically oriented psychotherapy that was beyond the financial reach of many and not proven effective for the disorders of battered women. When

Table 2. Features of battering beyond mere physical asssault

Behavioral features:

- · physical assault
- threats and intimidation
- · humiliation and degradation
- · rape or withholding of sexual affection
- isolation
- · restriction of money and access to resources

Experiential features:

- fear
- · psychological vulnerability
- disempowerment
- feelings of shame and embarrassment
- entrapment

Conceptual features:

- enduring condition, not discrete events
- · chronic, not acute
- · process of control and entrapment

battered women did not make consistent efforts to leave the battering relationship, or when their emotional states did not improve, they were labeled as self-defeating and masochistic and said to have "inadequate personalities," or to have "invited" the abuse. This professional labeling of battered women was also used to explain and excuse the batterer's behavior.^{5,13}

Current psychiatric diagnosis uses discrete signs and symptoms to more reliably define disorders and differentiate one from another. Psychiatric treatment now involves a broad range of psychotherapies and medications that can be tailored to treat the complex biopsychosocial condition of battered women. As a result, evaluation and treatment of psychiatric disorders can be carried out while simultaneously addressing the underlying battering relationship. This allows a comprehensive plan to treat the psychological and physical sequelae of battering and validates women's experiences and needs.

The prevalence of battering itself and the prevalence of psychiatric and chronic health disorders among battered women are still incompletely studied, but battered women appear to be at high risk for many health problems including post-traumatic stress disorder, nonspecific chronic pain, depression, and substance abuse (Table 3, at right). Although the mechanism by which battering produces these disorders remains uncertain, we outline some of those most clearly associated with battering.

Post-traumatic Stress Disorder (PTSD). PTSD, commonly associated with war veterans, can result from experiencing or witnessing battering.14 PTSD is one of eight anxiety disorders listed in the Diagnostic and Statistical Manual of Mental Disorders of the American Psychiatric Association (DSM-III-R). It is differentiated from the other seven by the fact that the sufferer has experienced an event outside the range of usual human experience that would be markedly distressing to almost anyone. PTSD is characterized by persistent re-experiencing of the traumatic event (often through nightmares and flashbacks), avoidance

of stimuli associated with the trauma, numbing of responsiveness (that is, feelings of detachment and restricted affect), and signs of increased arousal (insomnia, irritability, exaggerated startle response). Investigators using structured clinical interviews and self-report measures have documented PTSD in 45%-85% of women seeking refuge at shelters for battered women. 15,16 The severity of PTSD symptoms correlates with the severity and chronicity of battering, thus strengthening the causal relationship between the two.

Depression. Chronic battering also results in depression; in fact, depression and PTSD often overlap. Major depression (and "dysthymia") are differentiated from other states of sadness by criteria outlined in DSM-III-R. These include anhedonia, sleep and appetite disturbance, loss of libido, and suicidality. As with PTSD, few studies document the prevalence of depressive disorders among battered women. West and colleagues diagnosed major depression in 37% of battered women residing in an urban shelter.15 Other studies have found that approximately half of patients referred for psychiatric outpatient consultation or inpatient treatment had a history of battering relationships, and that affective disorders were diagnosed in about half of these referred patients.17,18 In contrast, one study did not find a mean elevation on the Minnesota Multiphasic Personality Inventory depression scale in 31 battered women seeking shelter.19

Chronic Pain. The association between physical or sexual abuse and chronic painful conditions has been increasingly explored in recent years. A very large percentage (40%-60%) of patients referred for evaluation of chronic headaches, ²⁰ irritable bowel syndrome, ²¹ and chronic pelvic pain²² have a history of past or ongoing physical or sexual abuse. Furthermore, those patients with chronic painful conditions who have been abused may be distinguished from those who have not been abused by their greater psychological distress, increased somatization, less perceived life control, and

Table 3. Health consequences of battering

Physical health:

· non-fatal traumatic injury

Mental health:

- · major depression
- dysthymia (chronic depression)
- · anxiety
- · post-traumatic stress disorder

Chronic health:

- · chronic pain syndromes
- · substance abuse
- · irritable bowel syndrome

Fatal outcomes:

- AIDS
- suicide
- · homicide

greater punishing responses,²² as well as by a higher prevalence of mood disorders and substance abuse.²³

Substance Abuse. The relationship between battering and substance abuse in women is not entirely clear. Most battered women do not abuse alcohol, illegal drugs, or prescription medications, but they, like women victimized by rape and child sexual abuse, are at increased risk of inappropriate use of drugs or alcohol. One review of the literature found that 7%-21% of women victims reported alcohol abuse or alcoholism.24 Furthermore, the proportion of battered women who use alcohol or drugs may be increasing. One recent study found that less than 18% of women drank before being assaulted, but 48% drank afterward.25 And battered women are more likely than nonbattered women to continue to drink or abuse drugs during pregnancy.26

Two different explanations are given for the relationship between battering and substance abuse by women. The first says that substance abuse itself places women at risk of being assaulted. The second (and generally more creditable) says that battered women turn to alcohol and drugs in order to cope with the physical and emotional pain, fear, and powerlessness of being battered.

In either case, sobriety can only help

battered women because continued substance abuse may impair their ability to evaluate their risk of danger and their options, and thereby increase the actual danger they are in. Dependency on alcohol or drugs probably makes it more difficult to begin or sustain the process of leaving an abusive partner.²⁷

Implications for Medical Practice

Clinicians sometimes question the benefit—to them or the patient—of uncovering and discussing battering. Anecdotal, case study evidence suggests it can help.28 Norton and Manson²⁹ described three cases of women with major depression whose symptoms resolved not with antidepressant drugs but with recognition and resolution of their violent marital relationships. However, no large studies document the resolution of psychiatric and psychosomatic disorders by uncovering abuse. Nevertheless, patients tend to welcome inquiries by physicians,30 and in one of the author's (DKG) clinical experience, battered women express relief at the opportunity to discuss their experiences in a nonthreatening and nonjudgmental setting (see related article, page 440). The primary benefit to physicians and patients alike probably lies in the recognition of battering as a basis of complex and confusing symptoms that may not respond to medication or other treatments.

The panoply of psychological consequences of battering means that battered women present with a multitude of acute and chronic symptoms and not primarily with bruises and broken bones. Battered women are not easily identifiable unless physicians recognize the subtle signs of battering. Physicians should not limit inquiry about battering just to patients who demonstrate outward signs of physical assault, but should include women with psychological, chronic pain, and substance abuse symptoms (Table 4, below).

Effective identification of battering as an underlying or contributing cause of women's health problems also requires that physicians question even women who are "asymptomatic," or do not express more obvious physical or psychological symptoms. The uncertainty of trying to diagnose battering based on symptoms that may be as ill-defined as "low self-esteem" or as clear-cut as major depression or PTSD suggests that the most practical and effective way to detect battering is to routinely ask about it. An inclusive approach to routine question-

ing removes the uncertainty of sporadic inquiry and enables physicians to uncover both early and advanced stages of battering. Early identification may help control and manage the consequences as well as provide physicians time and opportunity to establish the trust relationship needed to comfortably and effectively work with battered women.

The first step in diagnosis is to ask the patient about battering. This should be

done in private, with sensitivity, and must be conducted away from the batterer. Once battering is identified, the physician can engage in the following steps: consider the link between battering and the woman's health problems and relate this to her; plan treatment or intervention to take the battering into consideration; ensure the woman that she is not responsible for the violence and does not deserve it; validate her experiences as real and disturbing; help her determine the danger she is in, including the threat of violence, violence against children, and use of weapons; help her consider her options and the steps she can take to ensure her safety and resolve the violence in her life; and inform her of local resources including battered women's programs and shelters (see Health Watch, page 413). Physicians need to document in the medical record the patient's history of victimization as well as observed trauma, sequelae possibly linked to victimization, and referrals made. Physicians can help battered women most by providing an environment of trust and acceptance in which to share their expe-

Physicians should not expect immediate acceptance of or compliance with their recommendations. As they would with any behavioral intervention-like quitting drinking or smoking or losing weight-physicians need to develop a collaborative and supportive alliance with their patients. Developing the motivation and capacity, and overcoming the obstacles to leaving a dangerous, violent relationship, is often a long process for women. Too often, physicians become frustrated and apathetic when battered women remain in violent relationships despite the apparent dangers. Physicians must realize that the psychological and physical sequelae of victimization, and battered women's lack of resources and isolation, make leaving an abusive partner a complex process that will take time, emotional and tangible support, psychological preparedness, safety, and resources.

A supportive social network of family, friends, and professionals is one of the most important factors enabling

Table 4. Medical practice implications of battering

Identification:

- focused questioning of women with "high-risk" problems
- · routine screening questions for all women

Intervention:

- consider link between battering and health problems
- · ensure safety, confidentiality
- · establish trusting, not judgmental environment
- validate the woman's experiences
- create a comprehensive treatment plan
- · address both psychological and physical sequelae
- · document carefully in the medical record

Referral:

- establish strong doctor-patient relationship
- · have available and offer list of local resources
- · discuss possible mental health referral

women to end battering relationships. The woman's self-esteem, her perception of safety for herself and her children, the deterioration of her relationship, the chronic nature of violence, and her financial self-sufficiency all affect a woman's ability to leave. ^{12,31} Physicians should address these obstacles in a concerned, supportive, and open way and refer the patient when appropriate to mental health professionals, social service agencies, or domestic violence shelters. In fact, the complex needs of the battered woman are probably most effectively handled with a team approach.

A physician who refers a battered woman to a mental health professional should clarify several matters. First, the reason for the referral should be explicit is it for psychotherapy, psychoactive medication, or both? She may fear being labeled "crazy" or involuntarily committed to a psychiatric institution as her partner may have been threatening all along. She may fear that psychiatric care will cause her to lose custody of her children. The patient needs reassurance that referral will not support her partner's claims that she is an unfit mother. Therefore, confidentiality of medical record information, especially of mental health records, is essential. And she also may need reassurance that a valued relationship with her primary care physician will not be lost by mental health referral (it helps to schedule a follow-up appointment at the time of mental health referral).

Lastly, neither the woman nor the physician should expect the mental health referral to "cure" the battering relationship. It is only part of an overall treatment

"Battering means
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and intervention program which, together with sensitive and appropriate medical care, can help battered women achieve safety and security.

Summary

Battering means more than just physical assault. It means pain and injury from

physical assault *plus* continuous psychological degradation, sustained fear, diminished power and control, and loss of identity and self-esteem. Women often feel trapped in violent relationships because of their partners' threats to kill them if they leave, and because police, medical, and social services systems often inadequately protect and help them.

Battering is best understood as a continuous traumatic experience and, like many other forms of trauma, it takes a considerable psychological toll on its victims. Battered women are at risk for chronic physical and psychological health problems including PTSD, depression, chronic pain, and substance abuse. The high prevalence of battering, and its psychological and physical consequences, means that battered women present with a multitude of acute and chronic symptoms and are not easily identified.

The most practical and effective way to identify battering is to routinely ask all women patients about it. Identification gives physicians a way to understand complex and confusing symptoms and an opportunity to help battered women undertake the difficult and dangerous process of leaving abusive partners. In addition, doctors, in collaboration with battered women patients and other professionals, can help develop comprehensive plans to reduce this complex public health problem.

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Responding to Domestic Violence

In Office and In Community

Kathy Hodges, MSW

As a health care provider, you see battered women every day. Many who come to you want more than treatment of the symptoms they describe. They hope you will see beyond the immediate problem to identify the violence that causes their illness or injury and provide appropriate intervention.

There is violence among same sex couples, and there are men who are victimized by women, but at least 95% of the victims of domestic violence are women who have been abused by male partners. In this article I will focus on violence against women, pointing out some of the issues battered women face and how health care providers can help.

Domestic Violence in Your Practice

Care for battered women rests on providing support for change. The Domestic Violence Project lists seven steps to patient empowerment.² To these I have added the identification of battering (Table I). Together these steps create an effective response that will allow you to offer your patient care beyond the immediate injury or illness.

Identify abuse. Identifying the victim of domestic violence is the critical first step to effective treatment. Many

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patients are reluctant to bring up the issue of domestic violence, but they often are desperately seeking information that may be helpful. Dr. Bonnie Dattel tells of a physician who obtained a book on domestic violence but did not have time to read it. She left it lying on her desk. When the doctor later looked for it, it was gone. After replacing and "losing" the book twice more, the doctor realized that her patients were "borrowing" it. For the first time she recognized that domestic violence was a reality for her patients. Since then she has kept literature on domestic violence and community resources in her office exam rooms and bathrooms where women can take and read it in privacy.3

Physicians can employ many resources that offer openings for discussion. The patient must feel safe and believe that she will be understood before

she will talk about violence in her life. Posters on domestic violence in waiting and examination rooms, brochures, and other literature strategically placed around the office, a willingness to ask about domestic violence openly and in a straightforward manner during a routine visit-all communicate this message to the patient.

All are important in reaching out to battered women.

Listen and believe her experiences of abuse. It is essential that you examine the woman in private. If her injuries are caused by abuse, she will not be able to tell you what really happened if her partner is present. Ask directly about the possibility of abuse, as you would any other health problem. Questions like, "Does someone you care about hurt or threaten you?" "Does your partner make you feel unsafe?" "Has your partner forced you to have sex?"4 should be part of the information routinely gathered on patients. The questions will provide her with the opportunity to open up. Once she relates the abuse to you, it is important that you listen to her and believe her. Women often understate the level of violence they experience. She will be very

Table 1. Eight steps to patient empowerment*

- 1) Identify the abuse.
- 2) Listen and believe her experiences of abuse.
- 3) Assure her that she is not alone and she is not to blame.
- 4) Defend her right to live without fear of violence.
- 5) Refrain from overly prescribing sedative medicines.
- Encourage her to seek supportive services in the community.
- 7) Respond to her need for safety planning.
- 8) Support her decisions.
- * Adapted from Ladders to Empowerment: Domestic Violence Project, Inc., 6308 8th Ave., Kenosha, WI 53143, 414/656-8502.

concerned about your comfort level and may stop talking—even retract her statements—if she feels that you do not believe her or do not want to hear what she has to say. Confidentiality is critical. She must know that you will not turn to her batterer to verify her story.

Assure her that she is not alone and she is not to blame. Batterers isolate their partners from parents, friends, and professional caregivers. This isolation enhances a battered woman's perception of being trapped in the relationship. Her batterer may even

blame her for provoking him and causing the violence. As a result, she may believe that she is to "blame" for his violence. It may help her to know that many women are battered every year, and she is not the only one. It is very important for her to know that she did not cause what happened to her. It may help if you tell her that the violent episode is not the result of any precipitating event, but of the abuser's need to control her. Physicians must understand and clearly communicate to the woman that the batterer is responsible for his actions. To do otherwise is to collude with the batterer and reinforce her feelings of guilt and blame.

Defend her right to live without the fear of violence. No one deserves to be beaten, no matter what his or her inadequacies may be. Women have the right, and their children have the right, to live in a safe environment. Domestic violence is a crime, and women can use the legal system to help keep themselves and their children safe. Let your patient know that you will support her in taking steps to keep herself safe.

Refrain from overly prescribing sedative medicines. Unfortunately, tranquilizers or sedatives have been the common choice of physicians treating battered women.⁵ Focusing on her depression or anxiety, to the exclusion of the battering, means treating the symptoms rather than the illness. This may lead to inappropriate prescribing of medication and prevent appropriate intervention. Medication may also make it more difficult for her to carry out a plan to receive assistance.

Encourage her to seek supportive services in the community. Most areas of North Carolina have a domestic violence program. These programs provide a wide variety of services that can help the pa-

Table 2. High-risk indicators for injury or death from domestic violence

- ✓ Increased frequency or severity of the episodes
- Use or threatened use of a weapon
- ✓ Presence of a gun in the home
- ✓ Threats to kill her, the children, other family members, or himself
- ✓ Attempts to kill her or himself
- Suicidal gestures or attempts by the patient
- Stalking behaviors

Table 3. Protective steps for women at risk

- The woman should gather all important papers for herself and her children (Social Security cards, birth certificates, financial records, etc.). These should be kept in a safe place where she can get to them in a hurry.
- 2) If at all possible, she should put aside extra cash, a checkbook, savings account, or credit cards.
- She should have an extra set of house and car keys hidden in a safe place or given to a friend or neighbor.
- 4) She should pack a suitcase, including essential clothing, toiletries, and medications for herself and the children—everything that would be needed in case she has to leave in a hurry.
- 5) She needs a plan of where to go for safety and how to get there, no matter when she needs to go. If the plan includes other persons, she will need to discuss it with them. She may be able to arrange a signal that will indicate that she needs them to call for help.
- 6) If danger is immediate, she should leave at once, taking the children with her if at all possible. She should try to get the papers, spare key, and suitcase if possible, but should not risk her safety for these items.
- 7) She should talk with the children about safety if they are old enough to understand. She should teach them how to call for help and where to go to keep themselves safe. She may want to set up a signal with them so that they will know when to call for help or leave.

tient, including crisis counseling, advocacy, and shelter. Contacting the program is a first step to many types of assistance, but the woman may be reluctant to do so. Assure her that she will be able to speak in confidence, and that no one will try to talk her into doing anything that she does not want to do. Program staff will help her examine her options and work with her to keep herself safe, but all decisions will remain hers.

Respond to her need for safety planning. A battered woman is in significant and ongoing danger. She has, however, lived with danger so long that she may not be aware of the risk she faces. A safety plan may help her escape additional violence; it is critical if she will continue living with her partner for any length of

time. Assessing her risk is the first step (Table 2). The higher the risk, the more need for a well-structured safety plan (Table 3). Remember: If you or the patient feel that she is in extreme danger, you must act on that feeling, regardless of the presence or absence of any of the listed risk factors.⁶

Support her decisions. This is the most difficult step of all. Often a battered woman is not able to leave her batterer right away. It may take weeks, months, even years for her to get the strength, courage, and resources to leave. She may leave and return several times before she is able to remain away. Her decisions may even appear not to be in her best interest. But she must be allowed self-determination. Battering systemati-

cally takes away her options and independence. You can help her explore her options and find the power to exercise them. This is a crucial step toward empowerment.

It is frustrating to watch a woman be repeatedly battered, especially after you have provided her with information and referrals. She may misconstrue your frustration as blame. Placing conditions on your assistance ("You must leave him." "You must prosecute.") will decrease your ability to provide help. She will be unable to return to you when the need arises. Learning about the pressures battered women face and the barriers to leaving may make it easier for you to deal with the frustration.

If It's So Bad, Why Doesn't She Just Leave?

This question is asked repeatedly. It is very important to understand how difficult it is to leave. Each battered woman faces tremendous barriers that must be overcome before she can leave a violent relationship. The first is fear. While she may be terrified of the abuser at times, the fear of leaving is usually even greater. He may have threatened her with great physical harm if she leaves—and his actions will have shown her that his threats are to be taken seriously. He may have threatened to kill her, himself, or the children. Since she is aware of what he may do, it is easier to monitor his behavior when she is with him than when she is not. And she knows that just leaving him will not be the end of it. Many women are stalked and harassed for years after leaving an abusive relationship. Some are killed. She knows she may die if she tries to leave and must reach the point where she is ready to face the fear of dying. Leaving is an act of courage.

The second obstacle to leaving is children. In spite of everything he may have done to her, the abuser is father to her children. She repeatedly gets the message from society that children need a father and that she should stay with him "for their sake." He may have made threats

about the children—that he will get custody of them, that he will take them away, that she will never see them again, that he will report her to social services for abusing the children. Her fears are justified. Domestic violence is present in half of all disputed custody cases, and all too often a batterer gets custody of the children. The court may not consider violence toward the woman relevant when making custody decisions. It is often the case, however, that the children are finally the reason a battered woman leaves---when the violence gets directed toward them or she sees the devastating impact that witnessing her abuse has on them.

Economic barriers are one of the most difficult obstacles battered women face. According to NC Equity, North Carolina women earn 70 cents for every dollar a man earns. Even if she is working

"(A battered woman) may misconstrue your frustration as blame. Placing conditions on your assistance will decrease your ability to provide help."

she usually starts out behind, and a battered woman may not have been working or her batterer may have controlled her by not allowing her access to the family income. Leaving often means being thrust into immediate poverty. It may be months before she gets child support, if ever. She may have a difficult time finding work that will allow her to support herself and her children adequately. Although the courts may award her possession of the house and a protection order, she may not be able to afford the rent or house payments. Going on welfare and finding subsidized housing may be her only options. She may even return to a violent relationship if she can find no other way to provide the finances she needs to ensure the health and well-being of her children.

Her religious beliefs and commitment to marriage may be an obstacle. When a battered woman turns to her minister for assistance, she may not find support. Like doctors, many ministers do not understand domestic violence or have attitudes that are harmful to battered women. She may be blamed for the violence, or encouraged to stay and try to "work things out," even when she is at great risk of harm. She may have to sort out a variety of conflicting feelings and religious teachings before she is able to protect herself by leaving.

These and other barriers—low self-esteem from long-term emotional abuse, the social stigma of being a battered woman, attachment to the batterer—combine to make leaving a challenging, dangerous, and, at times, insurmountable task. But when provided with assistance and support during the crisis and transitional period, many battered women are able to leave and to establish safer lives for themselves and their children.

Referring to a Domestic Violence Program

Local domestic violence programs are great resources in providing assistance to battered women. Most counties in North Carolina have a program that provides some level of services. For a complete directory of programs, and the counties they serve, see *Health Watch*, pages 413-6. All of the programs are independent. They have local boards and funding sources and vary in the services they provide. All have 24-hour crisis lines staffed by trained paid and volunteer personnel. Battered women can call at any time to receive assistance. All programs provide crisis advocacy and support.

Most programs have their own shelters; those that do not can find or provide shelter for a battered woman and her children, although it may mean leaving the county. Shelters are places of safety and refuge where a woman may stay for a limited period of time (two to eight weeks). While she is there, the staff will help her evaluate her options and provide counseling and legal advocacy so that she can use all resources available to help her move toward a permanent safe situation. Several programs offer transitional ser-

vices that help with housing and other needs for a longer period of time.

Services are also available for women who do not need shelter. The program staff helps identify options and chart a course of action. Services often include support groups, counseling, and legal advocacy.

Since services vary from program to program, it is important that you become acquainted with the services available in your area. Regardless of the services needed, the program will usually ask the battered woman to make personal contact before they offer any services. Most programs operate on a philosophy of empowerment and will only offer services to those who seek help.

If Your Patient Is a Batterer

Since battering is so common, you may discover that some of your male patients are perpetrators of domestic violence. Just as there is no typical battered woman, there is no typical batterer. They come from all racial, ethnic, and socioeconomic groups. Remember: They cannot address the problem of their violence without professional help.

You must consider safety when working with a batterer. Never confront him with information provided by his partner. This can be dangerous to the battered woman and to you. He may strike out in retaliation or prevent her from seeing you in the future. Only the legal system can provide the safeguards for directly confronting a batterer. You may, however, have a patient who recognizes his violence and wants to change his behavior. There may be an appropriate referral in your community, but be careful. Treat-

ment for batterers is evolving, and inappropriate treatment may result in increased violence and emotional abuse that leaves the battered woman in more danger than no treatment at all. Your local domestic violence program can tell you if appropriate treatment is available in your area.

Addressing Domestic Violence in Your Community

In addition to treating individual victims, you have a role to play as a leader in your community. Helping battered women one at a time, although vital, is not enough to control this epidemic. To reduce domestic violence in our community, physicians must work with domestic violence programs, the justice system, local government, and community leaders to address the legal and social problems that underlie battering. There are a number of things you can do. Contact your local domestic violence program and offer your help. The program will have varied needs and limited resources. Your program may have clients who need medical attention but lack insurance or financial resources. You could help by agreeing to see women and children staying at the shelter for acute or chronic health care needs. The program may need first aid or medication supplies, which you can provide. You can volunteer your time as a board member, for direct services or fund-raising. Find out where their needs and your skills match. And you can support your local program financially, either individually or as part of a group.

Community involvement is another avenue of support. A number of communities have developed multidisciplinary councils to address systemic supports for

and community response to battering. You can help by becoming an active council member, or by developing one if none exists. You can also work to increase community awareness by scheduling presentations, in conjunction with your local domestic violence program, to your local medical society or civic organization.

You can work for legislative and policy changes. Laws need to be changed so that battered women have increased access to protection orders, to ensure the consideration of battering in child custody decisions, and to increase penalties for repeated offenses of battering. State and local funding for domestic violence needs to be increased. In addition, as a community leader you must hold elected officials accountable when they do not work to end domestic violence.

You can join the NC Coalition Against Domestic Violence in their work to end violence against women and children. NCCADV supports domestic violence programs with training, resources, information, and technical assistance. The Coalition also works to unify programs, increase awareness, and coordinate efforts to create systemic change.

The problem of domestic violence can be overwhelming. There are no easy answers, either for the battered woman or for society. But there are some beginnings. Identifying violence in your patients' lives and empowering them to become free from violence is a central part of the solution. An African proverb states that the ruin of a nation begins in the homes of its people. As individuals, as physicians, as a state, we must begin to focus on intervening in and preventing domestic violence. Keeping our families—and our women and children—safe must become a priority. You can help.

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Continuing Medical Education

September 14

16th Annual Health Law Forum

Issues Confronting Physicians and Hospitals: A New Era

Place: Ramada Inn, Greenville Credit: 7 hours Category 1, AMA

Info: ECU Office of CME, 919/816-5208

or Edward E. Hollowell, 919/783-5657

September 22-25

Coastal Medical Retreat & Aesculapian Sports Classic

Place: Sunset Beach

Credit: 9 hours Category 1, AMA

Info: Bonnie Brown, New Hanover-Pender County

Medical Society, 910/251-8455

September 30

Genetics Conference

Place: Winston-Salem

Credit: 6 hours Category 1, AMA

Info: Bowman Gray Div. of CME, 910/716-4450,

or Physician Access Line (PAL) 800/277-7654

September 30

Geriatric Symposium

Place: Ramada Inn, Greenville

Credit: 7 hours Category 1, AMA; 7 hours AAFP

Info: ECU Office of CME, 919/816-5208

September 30

Rheumatology Update

Place: Winston-Salem

Credit: 6.5 hours Category 1, AMA

Info: Bowman Gray Div. of CME, 910/716-4450,

or Physician Access Line (PAL) 800/277-7654

September 30-October 2

1st Annual Joint Meeting—NC & SC Chapters

of the American College of Cardiology

Place: Ocean Creek Resort, N. Myrtle Beach, SC

Credit: 5.5 hours Category 1, AMA

Fee: \$85 (NC-SC ACC members), free (affiliates

& residents), \$160 non-members

Info: SC Chapter of ACC, 803/771-4271

October 7

6th Annual Clinical Cancer Conference:

Curative Therapy for Hematological Malignancies Clinical

Place: The Friday Center, UNC-Chapel Hill

Credit: 7 hours Category 1, AMA; 6.5 hours AAFP

Fee: \$100 (deadline Oct. 1)

Info: UNC-CH Office of CME, CB# 7000, 231 MacNider

Bldg., Chapel Hill, NC 27599-7000, 919/962-2118;

fax: 919/962-1664

October 15

1st Annual Fall Symposium on Atherosclerosis Prevention

Place: Blowing Rock

Credit: 5.5 hours Category 1, AMA

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October 15

TB Conference

Place: Winston-Salem

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October 20-22

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November 2

Leo Jenkins Cancer Center Symposium: Colon Cancer

Place: Ramada Inn, Greenville

Info: ECU Office of CME, 919/816-5208 (credit: TBA)

November 3

Risk Management in Managed Care

Place: Winston-Salem

Credit: 2 hours Category 1, AMA

Info: Bowman Gray Div. of CME, 910/716-4450,

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November 4-5

2nd Annual Minority Health Symposium

Place: Sheraton Imperial Hotel, Research Triangle Park Credit: 10 hours Category I, AMA; 10 hours AAPA

Fee: \$50 (NCAPA fellow), \$55 (NCAPA affiliate), \$60

(non-member), \$30 (student)—by Sept. 8

Info: James H. Carter, Jr., PA-C, NCAPA, 3 Mattie Court,

Durham, NC 27704-1551, 919/684-2937

November 5

Clinical Management of Multiple Sclerosis

Place: Winston-Salem

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Aphorisms of the Month

Daniel J. Sexton, MD, Editor

Selected Sayings from "Big Ed's Calendar"* and Our Readers†

Science has yet to find a cure for the gun.

-Robert Byrne

A third of our university students break down from overwork; another third break down from dissipation; the final third rule Germany.

—Bismarck

A really busy person never knows how much he weighs.

—Ed Howe

One-fifth of the people are against anything you can suggest.

—Robert Kennedy

If I had known those were the "good old days," I would have paid more attention. —Dave Bernhardt

Everybody has the right to pronounce foreign names as they choose.

—Winston Churchill

The word "meaningful" as used today is almost always meaningless.

—Paul Johnson

A little inaccuracy sometimes saves tons of explanation. —H.H. Munro

It is astonishing with how little reading a doctor can practice medicine, but it is not astonishing how badly he may do it.

—William Osler†

* Abstracted from Judge Ed Dycus's monthly column in Briefcase, a publication of the Oklahoma County Bar Association, copies of which were kindly provided by John M. Perry, III

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[†] Provided by Joseph R. Pringle, Jr., MD, Burlington

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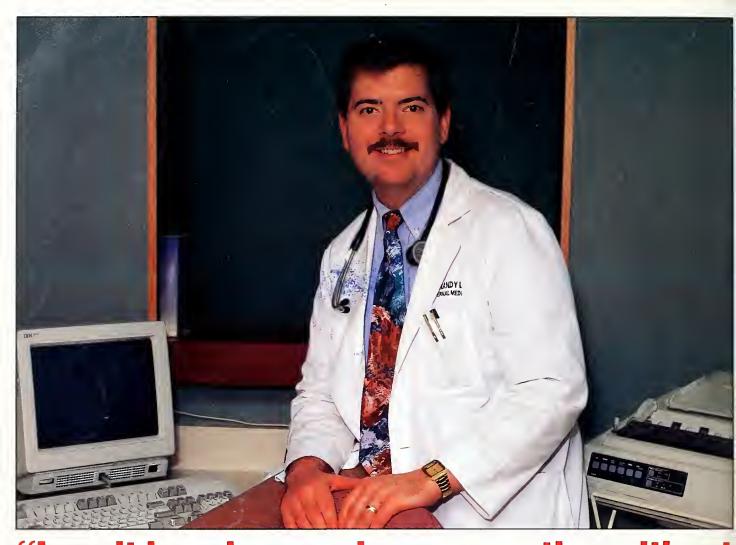
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October 1994 Volume 55 Number 10

North Carolina Medical Journal

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References: 1. Silvis SE, Griffin J, Her (in K, et al. Final report on the United States multicenter trial comparing multidine to climatidine as maintenance therapy following healing of durdenal ulcer. J Clin Gastr enteral, Department 1955;7:452.457.

2. Gouch KK, Komen MG, Bardhan KD, et al. remits tine and climatifine in prevention of durdenal ulcer release; a double blind, randomised, multicentre, comparative trial. Lancet. September 22, 18/4/12/259-62, 3. Units on file, Glaxuling.



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CONTRAINDICATIONS: Zantac* is contraindicated for patients known to have hypersensitivity to the drug or any of the ingredients (see PRECAUTIONS).

Organizations. Same: so commanded on patients known to have hyperstainting to did ring or any of the ingredients (see PRECAUTIONS).

PRECAUTIONS: General: 1. Symptomatic response to Zantac's therapy does not preclude the presence of gastric malignancy. 2. Since Zantac is excreted primarily by the kidney, dosage should be adjusted in patients with impaired renal function (see DOSAGE AND ADMINISTRATION). Caution should be observed in patients with hepatic dysfunction since Zantac is metabolized in the liver. 3. Rare reports suggest that Zantac may precipitate acute porphyria tatacks in patients with acute porphyria. Information for Patients: Phanylketonuries: Zantace* 150 EFFERdose** Tablets and Zantace* 150 EFFERdose** Granules contain phenylalanine 16.84 mg per 150 mg of rankidine.

Laboratory Tests: False-positive tests for urine protein with Multistix** may occur during Zantac therapy, and therefore testing with sulfosalicylic acid is recommended.

Orug Interactions: Although Zantac has been reported to bind weakly to cytochrome P-450 in vitro, recommended doses of the drug do not inhibit the action of the cytochrome P-450-linked oxygenase enzymas in the liver. However, there have been isolated reports of drug interactions that suggest that Zantac may affect the bioavailability of certain drugs by some mechanism as yet unidentified (e.g., a pH-dependent effect on absorption or a change in volume of distribution).

Increased or decreased prothrombin times have been reported during concurrent use of rankidine and warfarin. However, in human pharmacokinetic studies with dosages of rankidine up to 400 mg per day, no interaction occurred; rankidine had no effect on warfarin clearance or prothrombin time. The encossibility of an interaction with warfarin at dosages of rankidine higher than 400 mg per day has not been investigated.

been investigated.

been investigated.

Carcinogenesis, Mulagenesis, Impairment of Fertility: There was no indication of tumorigenic or carcinogenic effects in life-span studies in mice and rats at dosages up to 2,000 mg/kg per day.

Ranitidine was not mutagenic in standard bacterial tests (Salmonella, Escherichia coli) for mutagenicity at concentrations up to the maximum recommende for these assays.

In a dominant lethal assay, a single oral dose of 1,000 mg/kg to male rats was without effect on the outcome of two matings per week for the next 9 weeks.

Pregnancy: Teralogenic Effects: Pregnancy Category B: Reproduction studies have been performed in rats and rabbits at doses up to 160 hmes the human dose and have revealed no evidence of impaired fertility or harm to the fetus due to Zantac. There are, however, no adequate and well-controlled studies in pregnant women. Because animal reproduction studies are not always predictive of human response, this drug should be used during pregnancy only it clearly needed

Nursing Mothers: Zantac is secreted in human milk. Gaution should be exercised when Zantac is administered to a nursing mother.

Pediatric Use: Safety and effectiveness in children have not been established.

Use in Effectly Patients: Ulder healing rates in elderly patients (65-82 years of age) were no different from those in younger age-groups. The incidence rates for adverse events and laboratory abnormalities were also not different from those seen in other age-groups.

ADVERSE REACTIONS: The following have been reported as events in clinical trials or in the routine management of patients treated with Zantae®. The relationship to Zantac therapy has been unclear in many cases. Headache, sometimes severe, seems to be related to Zantac administration. Central Nervous System: Rarely, malaise, dizziness, somnolence, insomnia, and vertigo. Rare cases of

reversible mental confusion, agricultant, and vertigo, had be cases of reversible blurred vision suggestive of a change in accommodation have been reported. Rare cases of reversible blurred vision suggestive of a change in accommodation have been reported. Rare reports of reversible involuntary motor distributions by the bear received. disturbances have been received.

Cardiovascular: As with other H₂-blockers, rare reports of arrhythmias such as tachycardia, bradycardia, atrioventricular block, and premature ventricular beats.

Gastrointestinal: Constipation, diarrhea, nausea/vomiting, abdominal discomfort/pain, and rare reports

of pancreatitis.

on pancreaturs.

Hepatic: In normal volunteers, SGPT values were increased to at least twice the pretreatment levels in 6 of 12 subjects receiving 100 mg q.i.d. intravenously for 7 days, and in 4 of 24 subjects receiving 50 mg q.i.d. intravenously for 5 days. There have been occasional reports of hepatitis, hepatoceallular or hepatocanalicular or mixed, with or without jaundice. In such circumstances, rantiting should be immediately discontinued. These events are usually reversible, but in exceedingly rare circumstances

death has occurred.

Musculoskeletal: Rare reports of arthralgias and myalgias.

Hematologic: Blood count changes (leukopenia, granulocytopenia, and thrombocytopenia) have occurred in a few patients. These were usually reversible. Rare cases of agranulocytosis, pancytopenia, sometimes with marrow hypoplasia, and aplastic anemia and exceedingly rare cases of acquired immune hemolytic anemia have been reported.

alterna have been reported.

Endocrine: Controlled studies in animals and man have shown no stimulation of any pituitary hormone by Zantac and no antiandrogenic activity, and cimetidine-induced gynecomastia and impotence in hypersecretory patients have resolved when Zantac has been substituted. However, occasional cases of gynecomastia, impotence, and loss of libid of have been reported in male patients receiving Zantac, but the incidence did not differ from that in the general population.

Integumentary: Rash, including rare cases suggestive of mild erythema multiforme, and, rarely,

alopecia.

Other: Rare cases of hypersensitivity reactions (e.g., bronchospasm, fever, rash, eosinophilia), anaphylaxis, angioneurotic edema, and small increases in serum creatinine.

OVERDOSAGE: There has been limited experience with overdosage. Reported acute ingestions of up to 18 g orally have been associated with transient adverse effects similar to those encountered in normal clinical experience (see ADVERSE REACTIONS). In addition, abnormalities of gait and hypotension have been reported.

nave neen reported.

When overdosage occurs, the usual measures to remove unabsorbed material from the gastrointestinal tract, clinical monitoring, and supportive therapy should be employed.

Studies in dogs receiving dosages of Zantace in excess of 225 mg/kg per day have shown muscular tremors, vomiting, and rapid respiration. Single oral doses of 1,000 mg/kg in mice and rats were not lethal. Intravenous LO₅₀ values in mice and rats were 77 and 83 mg/kg, respectively.

DOSAGE AND ADMINISTRATION: (See complete prescribing information in Zantac* product labeling.)
Dosage Adjustment for Patients With Impaired Renal Function: On the basis of experience with a group of subjects with severely impaired renal function treated with Zantac, the recommended dosage in patients with a creatinine clearance less than 50 mL per minute is 150 mg or 10 mL (2 teaspoonfuls equivalent to 150 mg of ranitidine) every 24 hours. Should the patient's condition require, the frequency of dosing may be increased to every 12 hours or even further with caution. Hemodiatysis reduces the level of circulating ranitidine, Ideally, the dosing schedule should be adjusted so that the timing of a scheduled dose coincides with the end of hemodialysis.

March 1994



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North Carolina Medical Journal

FOR DOCTORS AND THEIR PATIENTS

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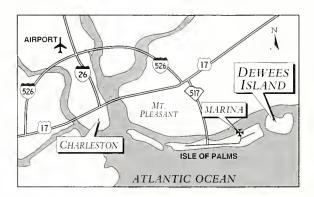
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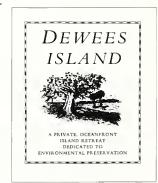
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Letters to the Editor



Substance Abuse Treatment Modalities

To the Editor:

In "Substance Abuse Treatment: Beyond the Minnesota Model" (NC Med J 1994;55:224-6) Mathew, Georgi and Nagy state: "A 1986 article by Miller and Hester raised serious questions about the Minnesota Model on scientific grounds." We have carefully read the "26 studies" surveyed in Miller and Hester¹ but believe that none of those randomized/controlled studies investigated the Minnesota Model of treating substance abuse. Even reading every one of those studies, one would not know that places such as Hazelden, the Betty Ford Center, or Fellowship Hall exist.

The treatment studies surveyed by Miller and Hester largely use traditional psychiatric/social-work oriented therapy. They are radically different in basic approach and methods from the "Minnesota Model" of treatment which is described fully and adequately by Cook.² Since the reports reviewed in Miller and Hester studied treatment modalities fundamentally different from the Minnesota Model, it is not valid to state that the conclusions of the Miller and Hester paper pertain to the cost-effectiveness or general effectiveness of Minnesota Model treatment.³

It is true that there is a relative paucity of controlled research on Minnesota Model treatment. Two such studies have been done, however, and both (Walsh, et al⁴ and Keso and Salaspuro⁵) report positive outcomes for the Minnesota Model program compared to alternative treatments. That is not the point of this letter, however. We simply wish to point out as forcefully as possible that it is wrong to use the famous Miller and Hester study to answer questions about the cost-effec-

tiveness and general effectiveness of Minnesota Model residential addiction treatment.

> Jesse J. Sell, PhD, CSAC P.O. Box 425 Bahama, NC 27503

Edmund F. Ward, III, CCS, CSAC
Executive Director
Fellowship Hall, Inc.
P.O. Box 13890
Greensboro, NC 27415

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- 1 Miller WR, Hester RK. Inpatient alcoholism treatment: who benefits? Am Psychol 1986;41:794-805.
- 2 Cook CCH. The Minnesota model in the management of drug and alcohol dependency: miracle, method or myth? Br J Addict 1988;83:625-34, 735-48.
- 3 Sell JJ (in press). A critique of outcome studies misapplied: the Minnesota model and managed care. Alcoholism Treatment Quarterly, 1995;13(2).
- 4 Walsh DC, Hingson RW, Merrigan DM, et al. A randomized trial of treatment options for alcohol abusing workers. N Engl J Med 1991;325:774-82.
- 5 Kesa L, Salaspuro M. Inpatient treatment of employed alcoholics: a randomized clinical trial on Hazelden-type and traditional treatment. Alcoholism: Clinical and Experimental Research 1990;14:584-9.

The Authors Reply:

Dr. Sell and Mr. Ward raise an important point concerning the definition of Minnesota Model. They argue that the treatments surveyed by Miller and Hester¹ differ radically from the Minnesota Model and that any conclusions based on this review are not pertinent to the model. We point out that no such view has been expressed in the many previous authoritative reviews of the topic (of the Miller and Hester paper).^{2,3} Even Jerry Spicer,

president of the Hazelden Clinic, failed to include this point among his criticisms of the Miller and Hester paper. 4p100-1

The main source of confusion seems to be the definition of "Minnesota Model." It consists of inpatient care, usually 28 days long, provided in non-acute care settings, and based primarily on the philosophy of Alcoholics Anonymous.5 Dr. Spicer provides a much broader definition: "We could even reduce [the model] to three core perspectives: Treat people with chemical dependency, treat them with dignity, treat them as a whole person-mind, body, and spirit."4p47 "The Minnesota Model is sometimes mistakenly taken to mean merely inpatient treatment of any kind. In fact, the model actually calls for a wide-ranging continuum of care," including diagnostic and referral centers, detoxification centers, inpatient treatment, extended care programs, residential intermediate care, outpatient care, aftercare, and family programs.4p56-7

Sell and Ward claim that to date, only two studies^{6,7} have evaluated Minnesota Model treatment, and both yielded results in favor of the model. The point of contention is whether the treatment programs reviewed by Miller and Hester¹ and those of Walsh et al6 and Keso and Salaspuro⁷ differ fundamentally on the components of the Minnesota Model as understood by Sell and Ward. We looked at six of the papers9-14 highlighted by Miller and Hester and at the papers by Walsh et al6 and Keso and Salaspuro7 using the criteria for the Model given by Cook,8 which Sell and Ward found "full and adequate." Because of space constraints, it is impossible to give evaluations of all 26 studies reviewed by Miller and Hester. Table 1, next page, illustrates whether these programs met the criteria

Table 1. Components of inpatient programs

Components ⁸	Walsh et al ⁶	Keso & Salaspuro ⁷	Stein et al ¹⁴	Pittman & Tate ¹³	Wilson et al ⁹	Edwards et al ¹⁰	Edwards & Guthrie ¹¹	Mosher et al ¹²
Group therapy Didactics AA counseling Multiprof. staff Milieu Work assignmt. Family therapy 12 steps Daily readings Life history AA/NA OT/RT Duration (av.)	unk unk unk unk unk unk unk unk maybe unk unk yes unk 23 days	yes yes yes yes unk unk unk yes unk unk yes unk unk yes unk 28 days	yes yes maybe yes yes unk unk yes unk unk yes unk unk yes 30.45 days	yes yes maybe yes unk unk maybe unk unk yes yes 3-6 wks.	yes yes maybe yes unk unk unk yes unk yes yes 21 days	yes unk unk yes yes unk yes maybe unk unk yes yes 6 wks.	unk unk unk unk unk yes maybe unk unk yes unk syes unk syes unk	yes yes maybe yes maybe unk unk unk unk yes yes 21 days

unk = unknown

described by Cook.8 It should be noted that the treatment program descriptions were brief in most papers and some approximations were necessary (especially in the British papers by Edwards).

None of the programs met all Minnesota Model criteria as defined by Cook, but most of them met several. We could not see any major differences between the treatment programs studied by Walsh et al, 6 Keso and Salaspuro, 7 and several others. Of the two studies cited by Sell and Ward, only that of Walsh et al 6 addressed the main issue of our paper—comparisons between inpatient and outpatient treatment.

The inpatient treatment program described by Walsh and colleagues⁶ (which Sell and Ward accept as true Minnesota Model) consisted of compulsory hospitalization in 10 hospitals for an average of 23 days. They met the criteria set by the Joint Commission on Accreditation of Hospitals, held AA meetings at the hospital, and cited abstinence as the goal of treatment. On the other hand, treatment reported by Stein and colleagues¹⁴ (which Sell and Ward do not accept as Minnesota Model) consisted of an average of 30 days of a milieu program, group psychotherapy, ward meetings, AA, didactic lectures on the medical and psychological aspects of alcohol and alcoholism, and recreational and occupational therapy. Religious counseling was also available.

Two AA counselors were on the ward in addition to other staff.

It is unclear as to why the two studies that provided favorable results should be deemed true Minnesota Model programs while the six that gave unfavorable results are called "traditional psychiatric/social work-oriented therapy."

Hazelden Clinic, Betty Ford Center, Fellowship Hall, and many other fine facilities provide high-quality treatment based on existing knowledge and standards. All treatment approaches should be evaluated and updated in light of new research findings and economic realities. Change is fundamental to progress and to our very existence. Change is inevitable, even for the very best.

Roy J. Mathew, MD Jeff Georgi, MDiv Paul Nagy, MS Duke Alcoholism and Addictions Program Box 3972 DUMC Durham, NC 27710

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Illiteracy Still a Problem To the Editor:

The article, "Illiteracy and the Readability of Patient Education Materials," (NC Med J 1994;55:290-2) reminded me of a consultation I did on a young pregnant patient with diabetes. I was asked to see her because she consistently failed to follow written dietary and medication instructions. Her obstretrician wondered is she were deliberately self-destructive.

She was cooperative, appeared intelligent, and spoke as if she were at least a high school graduate. When I thought we were relating well, I asked her bluntly why she would not follow the written instructions. With considerable embarrassment, she said, "Dr. Mathis, I can't read." She explained how she had been ashamed to volunteer this to the obstetrician. I asked her how she had learned to speak so well. She said she had learned the words by watching television.

That was 30 years ago. Apparently little has changed.

James L. Mathis, MD
Professor Emeritus
Department of Psychiatric Medicine
ECU School of Medicine
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Family Connection

To the Editor:

What a pleasant surprise to read Dr. John Graham's article "The James Bell Bullitt Enigma: A Case of Metaphorical Siamese Twins" in the August *Journal* (NC Med J 1994;55:353-5). Dr. Graham is to be commended for his meticulous research, and I personally want to thank him for affording my family and me some detailed information of which we were unaware.

Although I never had the pleasure of knowing "our" Dr. James Bell Bullitt, "the other" Dr. James Bell Bullitt was my grandfather's brother.

Joshua Fry Bullitt Camblos, MD 17 Forest Road, Biltmore Forest Asheville, NC 28803

"No Fault," Round Three To the Editor:

There is much to agree with in Dr. Grove's thoughtful "The Paradox of Perfect Practice" (NC Med J 1994;55:243-7). He is correct when he suggests that malpractice suits represent a societal, legal, and professional response to the central reality of increased medical injury, less-than-perfect results, and unmet expectations. I also support reform. However, despite Dr. Grove's argument, the benefits of a comprehensive no-fault system are not "obvious" nor is the AMA's failure to support such a plan "inconceivable." In fact, except in a few narrowly

defined instances (such as birth-related incidents and vaccine liability), the nofault approach for medical compensation is conceptually flawed and cannot accomplish its stated goals.

Although no-fault medical liability might standardize damage awards and eliminate outrageous verdicts, such an arrangement would almost certainly increase, not decrease costs. Available empirical studies conclude that only 10%-12% of genuine victims of medical negligence attempt to sue their physicians.¹² Many patients do not know they have been negligently injured, do not know how to seek redress, are adverse to filing suit, or cannot secure an attorney because the facts of their case are problematic or the potential damage award is low. Under a no-fault system these deterring factors would evaporate. The onus against suing would no longer discourage injured individuals from seeking compensation through the new administrative system. For example, relatively few individuals would sue their employers, but rarely does someone refuse to accept reimbursement from no-fault worker's compensation. We could expect the number of legitimate negligent medical liability claims, if the no-fault system worked correctly, to increase by as much as a factor of 10.

Other studies have indicated that money is currently paid to a plaintiff in approximately 50% of the medical mal-

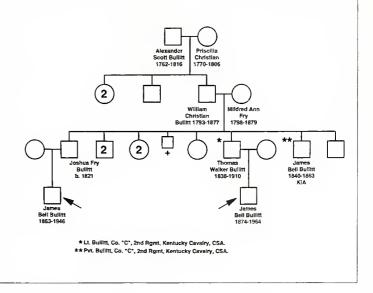
Fixed Figure

To the Editor:

I am very pleased with the final product of my account of the James Bell Bullitt enigma in the August issue (NC Med J 1994;55:353-5), but it contains an egregious error, one that will not be apparent to everyone.

In Fig. 3, an extra vertical line that crept into the pedigree chart shows that Dr. Bullitt's parents were related as brother and sister. The *Journal* is blameless; I am the culprit. I approved the galley the week between my cardiac catheterization and open heart surgery. Apparently I was not as "cool" as I was trying to pretend. [See corrected figure, at right.]

John B. Graham, MD, Professor Emeritus UNC-Chapel Hill, P.O. Box 607 Chapel Hill, NC 27514



practice cases filed.³ Under a no-fault system, money would be paid out in every instance of medical injury. It is good that 100% of the genuine negligence cases will be reimbursed 100% of the time, but this will undeniably increase the number of claims and the money expended.

Dr. Grove's proposed no-fault system would pay claims on all medical injury, regardless of fault. Therefore, the number of non-negligent medical injury claims would also increase and be reimbursed across the board. One study of more than 30,000 hospital records concluded that adverse events (a result of both negligent and non-negligent medical management) occurred in 3.7% of hospitalizations.4 Under Dr. Grove's scheme, all of these patients, without challenge, would be entitled to reimbursement. The number of no-fault claimants would far eclipse the current number of malpractice plaintiffs and generate a crushing financial burden, as well as substantial administrative costs.

In addition, the adversarial component can never be entirely eliminated. For example, under a no-fault arrangement a claimant need no longer establish the negligence of the physician. But unless the system is to compensate every lessthan-perfect medical outcome, compensation must be limited to injuries that result from, or are caused by, medical management. Resolving causation issues in worker's compensation, where injuries are typically caused by an obvious accident or event, has generated unending litigation for nearly 100 years. Medical scenarios raise infinitely more vexing causation questions. There often will be no clear or easy way to distinguish between inevitable injuries, physical debilitation intrinsic to the patient's initial condition, and injuries caused by medical management. Consequently, although the debate over fault may be partially bypassed, the equally challenging determination of causation remains problematic and unavoidable. Will it really be possible to create a rational and fair schedule of discrete, compensable medical events? A list of compensable events merely transfers the causation debate to another forum, one no less adversarial and equally open to legal challenge. There is an unlimited number of specific clinical situations under which a compensable event might occur and, if the list is too narrow, some individuals will be left without a remedy.

Given that limits must be set, decisions about causation will continue to be made on a case-by-case basis, thus retaining the adversarial system and increasing administrative costs. This dynamic illustrates why no-fault is viable only in those situations where there exists a relatively discrete medical event like birth or treatment with a vaccine.

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To the Editor:

I agree with Dr. Voytek in her response (NC Med J 1994;55:262) to "The Paradox of Perfect Practice" (NC Med J 1994;55:243-7). Implementing a no-fault system would be difficult, and such a system would be imperfect, as are all bureaucracies. Should this deter physicians from pursuing an alternative to the current medical tort system?

The current system is flawed from both the physician's and the patient's perspective. A 1984 study of medical injuries and lawsuits in New York showed that 80% of malpractice claims involved cases in which there was no malpractice, while less than 3% of the injuries due to negligence led to claims. The medical profession would have more success in

achieving reform if it concentrated on ways to help the 97% of patients with negligent injuries that are presently uncompensated, rather than complaining about the 80% of claims that are unjustly brought into the system. How can we solve our malpractice problems by advocating limits on the present tort system, when that system addresses only 3% of negligent injuries?

We can do better. The tort system is beyond repair. Patients and physicians deserve a better system with a greater degree of sensitivity and specificity for identifying negligent injuries. I support Dr. Grove's call for a no-fault medical malpractice compensation system.

> Barton R. Paschal, MD Asheville Hematology & Oncology Associates, PA Asheville, NC 28801

THINK FIRST in NC

To the Editor:

Ienjoyed "THINK FIRST: Head and Spinal Injuries" in the August *Health Watch* (NC Med J 1994;55:347-50). As president of the North Carolina Neurosurgical Society I wanted to provide a bit more information about the THINK FIRST program in North Carolina.

Ten THINK FIRST programs operate in the state, and some are more active than others. The majority of the programs give many presentations each year in schools, camps, etc.

Neurosurgeons in North Carolina have been quite generous in their financial support of the THINK FIRST Foundation. Since fall 1991, the NC Neurosurgical Society has contributed \$30,000 to the National THINK FIRST Foundation. The Society also contributed \$20,000 to the NC Medical Society Alliance Health Education Foundation, which helps support local THINK FIRST programs. This level of support is similar to financial contributions from states such as Florida and California, which have many more neurosurgeons than North Carolina.

It is important to note that although the THINK FIRST program was developed by neurosurgeons, the program welcomes input and participation from physicians of all specialties. *Journal* readers who have questions about the program may contact the National THINK FIRST office at 22 S. Washington St., Park Ridge, IL 60068, 708/692-2740, or the NC Neurosurgical Society at the address below.

K. Stuart Lee, MD President, NC Neurosurgical Society Division of Neurosurgery ECU School of Medicine 2325 Stantonsburg Road Greenville, NC 27834

Request From Afar

To the Editor:

Permission is requested to reproduce the cover of the May 1994 North Carolina Medical Journal to be published with an abstract on the item on page 161. F.N. Sanders, BDS, Editor, CME-VMO Medical Association of South Africa MASA House, Central Square Pinelands 7405, South Africa

From the Editor:

We were pleased to grant Dr. Sanders permission to reprint our May cover and Dr. Bruce Blackmon's "pearl of the month" on removing rings from patients.

Spreading the Word

To the Editor:

I was pleased that one of my favorite people, Dr. Lewis H. Nelson, III, has written an extremely informative paper about the Fetal Diagnosis and Treatment Center at Bowman Gray School of Medicine (NC Med J 1994;55:264-8, 312). I doubt if many people at our own Medical Center know about this; certainly most people in North Carolina don't know about it. The North Carolina Medical Journal serves a most useful purpose in this and in many other ways.

Eben Alexander, Jr., MD Department of Neurosurgery Bowman Gray School of Medicine Medical Center Boulevard Winston-Salem, NC 27157

Editors Must Educate

To the Editor:

I disagree with Dr. John Gamble's letter in the July issue (NC Med J 1994;55: 294). I really disagree with Orwell and

his six rules. Let me elaborate:

The English language, in spite of its richness—English vocabulary tripled from 250,000 words in 1955 to 750,000 in 1993¹—is very poor in affective words. We just do not have enough English words to express our sentiments and feelings. For example, more than 100 Arabic words convey the equivalent of one English word: love.

I am struck by the fact that we do not have English words to say exactly what a French idiom may express. For example, I have to write a paragraph in English to describe the feelings I get by reading the word "ennui." Similarly, it is impossible to translate phrases like "fait accompli." It is not a "done deal." It is not an accomplished task. When I say "fait accompli," I know and I feel that the job is done, and it is impossible to convey that feeling in English without writing a paragraph.

After all, what is English? Isn't it 50% Latin, 35% Greek, and 15% Indo-European languages? This is what is so exciting about it. English is dynamic, it changes, it absorbs words from other languages, and it expands. It is a living language. I don't understand fretting over using foreign phrases to make a point.

Finally, I believe that the editorial staff of a publication should elevate the intellectual level of its readers. I would be very disappointed if I read a piece in any periodical and found myself not having to run to the dictionary, encyclopedia, and other reference books to better understand the author's point. I believe it is not only desirable but necessary for the editors to use syntax, language, words, and references to stimulate the reader to further inquire and be educated. It is the responsibility of an editor to educate.

Assad Meymandi, MD 3320 Executive Drive, Suite 216 Raleigh, NC 27609

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76 Trombones

To the Editor:

Sometimes I feel like Miss Marion of "The Music Man." Here I am working

away to provide something for my community, friends, and neighbors—in my case medical care instead of music. I love music. I stir to Sousa marches, plunk on my piano, hum and sing along whenever no one is really listening. I was a happy and enthusiastic student of the French horn in high school band—just like I am pretty happy now as a local GP.

Band members, school administrators, and parents often face the same hard work, tough budgets, and confusion about how to fulfill their mission—how to make good music—as we do about how to make good medicine. The concerns of practitioners, hospitals, educational institutions, employers, politicians, and musicians are, to my mind, very similar. Making good music and making good medicine are real art forms.

But there are differences. The making of music is orchestrated by instrument fabricators, instructors, financial backers, agents, rule-makers and administrators. I am unwilling to let such kinds of persons intrude into the practice of medicine—my art form. Medicine, medical practice, and the future of medicine is a lot like the "Music Man" scenario. I believe all will work out in the end. At least "Miss Marion" and I hope so.

Just as when the music man came to town, my colleagues and I were recently "visited" by some of these "other types." We were informed, cajoled, and petrified by their vision of health care reform. They thrust cancer, yeast, HIV, malpractice, tuberculosis, data banks, regulations, and anti-trust in our faces. "For-our-owngood" advice and slick talk came from every direction.

Now I don't think we should initially think of new ideas and new ways as wrong or impossible to implement. But we should consider what we are about—and what others might be about. Change will come. There will be some kind of "Big Band"—we need to make sure it is a good band, not a piece of bad music.

Sometimes perceptions get in the way. I don't like to be perceived as anything other than what I am. So, I dislike being seen as prim, narrow-minded, opinionated, a dinosaur, a "crusty old doc," uncompassionate, or greedy. Above all, I

really don't like to be run over by 76 trombones, even if the barker says he is trying to make things better for me—and him. I think we need to decide what to do before we do something, to judge where and how deep the swamp is, then jump in. No one can make good music (or medicine) if they're up to their necks in murk.

I recall lots of good music of all kinds. One piece, from a "naughty" musical—The Greatest Little Whorehouse in Texas—tells of a boss politician and his ability to "do a little side-step." Let us not do the same. We must be thoughtful and careful. Let us not get run over by slick-talking folks, loud trombones, neat uniforms, twirling majorettes—no matter how catchy the song or dance. I'm reminded of the slick, fast-talking, overhead-projector-person who recently spoke

at a medical meeting here. The whole thing reminded me of the "Music Man." I was less than charmed.

Just now my beeper is quiet; my cat is snoozing on my house roof; my dogs are at the front window, growling; and I want to plunk away at my piano. When I finish letting my fingers talk here, I will see if they can do anything else. "Miss Marion" and I like our home places; we want to see and deal with new ideas. We mostly want to think a bit before we change, or insist on others changing. It would be nice to hear opinions of other primary care folks. How many "Music Men" are visiting your hometown?

Margaret N. Harker, MD Chair, *NCMJ* Editorial Board P.O. Drawer 897 Morehead City, NC 28557

Guidelines for Letters to the Editor

Letters are subject to editing and abridgment. Letters should not exceed 500 words; longer letters are welcome, however, and we will consider them for publication elsewhere in the *Journal*. Letters *must* be typed, double-spaced, and include the author's phone number and address. Longer letters may be submitted on computer disk.

We customarily send letters addressing specific points in previously published articles to the original authors for their response.

Send letters to: *North Carolina Medical Journal*, Box 3910 DUMC, Durham, NC 27710, or fax them to 919/286-9219.

BEPART

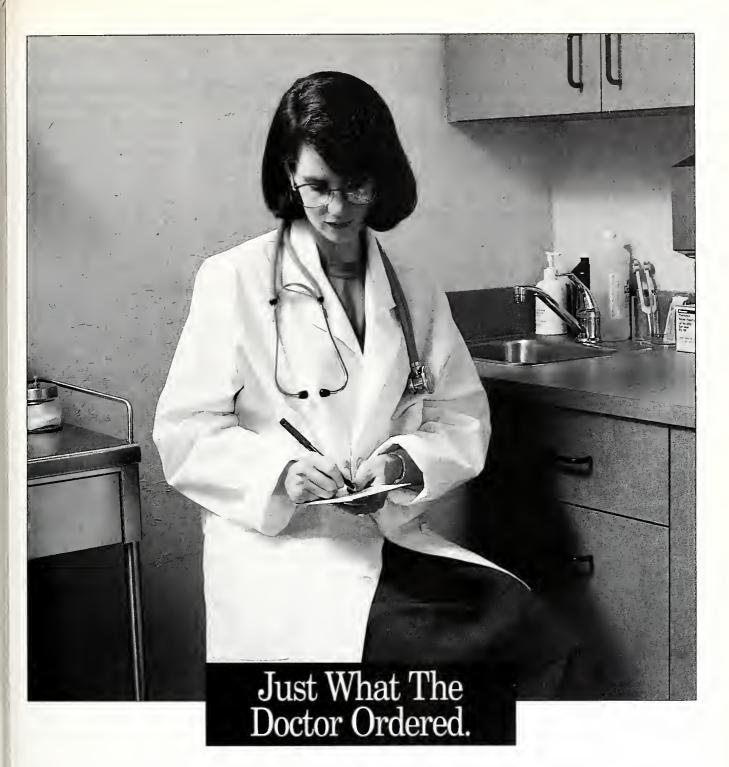
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Second-Look Laparoscopy

Thomas L. Eisenhauer, MD, Joseph C. McAlhany, Jr., MD, and J.D. Ashmore, Jr., MD

It is often necessary to resect portions of devascularized bowel in patients with mesenteric vascular disease. To ensure the adequacy of intestinal resection and anastomosis, "second-look" laparotomies have become common practice in the field of general surgery.1-5 Unfortunately, these second-look operations require that critically ill patients undergo a second major operation in the early post-operative period. A minimally invasive second-look technique that could provide the same information at less risk would be safer for the patient and at the same time more cost effective. Laparoscopy offers both these positive advantages.

A Patient With Ischemic Bowel

A 64-year-old woman came to the emergency department with a history of diffuse abdominal pain for several days. She had had no bowel movement in four days, but did have feculent vomiting.

Physical examination revealed an acutely ill patient with a low-grade temperature, tachycardia, and a mildly decreased blood pressure. No bowel sounds were audible. There was significant tenderness in the upper abdomen but no palpable masses. The stool was positive for blood by Hemoccult test.

Laboratory findings revealed an elevated serum creatinine of 7.2 mg/dL and urea nitrogen of 80 mg/dL. Blood hemo-

globin concentration was 13.7 g/dL and leukocyte concentration 16,100/mm3 with an increased number of immature forms. Abdominal films showed dilated small bowel with air in the proximal colon but no free intraperitoneal air.

The First Look: Laparotomy

The patient was admitted to the intensive care unit for intravenous hydration and monitoring. A nasogastric tube returned feculent fluid. A limited barium enema examination was ordered, but the patient became hemodynamically unstable and acidotic. She underwent urgent laparotomy, and was found to have ischemia of the distal ileum and proximal colon to the level of the splenic flexure where there was an adenocarcinoma. The ischemic intestine and the mass were resected and a primary ileocolonic anastomosis carried out.

After the abdominal cavity had been irrigated, a 1 cm incision was made in the skin overlying the bowel anastomosis. By blunt dissection through the anterior abdominal wall, a 10 mm Surgi-Grip trocar (US Surgical Corp.) was introduced. A purse-string suture of 4-0 chromic cat gut through the parietal peritoneum secured the peritoneum over the threads of the trocar. The midline incision was closed using a continuous suture of #1 polydioxanone suture (Ethicon) A

sterile, occlusive dressing was placed over the Surgi-Grip trocar and secured with a large Tegaderm (3M Pharmaceuticals) adhesive dressing (Fig. 1, at right).

The Second Look: Laparoscopy

Twenty-four hours after surgery the patient was brought back to the operating room for an assessment of intestinal viability. Under general anesthesia, the occlusive dressing was removed, and the abdominal wall was prepped and draped in a standard manner. A 10 mm Surgi-Port (US Surgical Corp.) trocar was placed through the Surgi-Grip, and carbon dioxide insufflated into the peritoneum. A laparoscope was then introduced gently into the peritoneal cavity and adequate visualization obtained using 7 mm to 8 mm Hg of intra-abdominal pressure.

A second Surgi-Port trocar (5 mm) was placed under direct visualization in order to manipulate the bowel for better exposure of the anastomosis. The anastomotic site was found to be viable, and so the pneumoperitoneum was released and the trocars removed. Trocar sites were closed with simple sutures of 4-0 ethilon (Ethicon), and the patient returned to the intensive care unit for further postoperative care. The remainder of her hospitalization was unremarkable; she was discharged on the 10th post-operative day.

Dr. Eisenhauer is with Hendersonville Surgical Associates, 561 Fleming St., Hendersonville, NC 28739, and Drs. McAlhany and Ashmore are with the Department of General Surgery, Greenville Hospital System, Greenville, SC.

Discussion

Second-look laparoscopy offers several advantages to the surgeon who must evaluate the efficacy of operation for bowel ischemia. The most important advantage is that the level of patient care is not compromised. In fact, the surgeon can assess bowel viability using the laparoscope as well as, if not better than, using laparotomy. If the gut is viable, the laparoscopic procedure is of relatively short duration meaning that acutely ill patients can be rapidly returned to the intensive care unit. The midline fascia is not reinjured by repeated opening and closing, which seems likely to decrease the incidence of wound dehiscence and infection.

Laparoscopy can be performed using light anesthesia (sometimes even only conscious sedation) thereby decreasing anesthetic risks. We believe that, if necessary and with careful monitoring, it is feasible to establish a pneumoperitoneum and perform laparoscopy in the intensive care unit itself.

The technique we describe for the laparoscopy is very simple. Only two precautions regarding the trocars need to be emphasized. 1) Peritoneum has a tendency to slip over the opening of the Surgi-Grip placed through the abdominal wall, making it difficult to introduce the trocar to create a pneumoperitoneum. Transfixing the peritoneum to the threads

Fig 1: Appearance with Surgi-Grip and occlusive dressing in place.

on the Surgi-Grip by a cat-gut suture alleviates this slippage and provides ready access to the peritoneal cavity. 2) The area surrounding the implanted Surgi-Grip must be kept relatively clean between the two procedures. We have found this most easily accomplished using 4-by-4-inch gauze pads covered by Tegaderm adhesive dressing. This dressing

also makes it easier to cleanse the skin in preparation for the laparoscopy. Surgeons who heed these precautions will find second-look laparoscopy a quick, technically easy, and minimally invasive means of evaluating the viability of anastomosed intestine. These are all characteristics that will serve the patient well.

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Official Call House of Delegates

House of Delegates Meetings Scheduled

Notice to:

Delegates, Alternate Delegates, and Officials of the NC Medical Society, component medical societies, and specialty societies

Sessions of the House of Delegates will convene at the Holiday Inn Four Seasons, Greensboro, NC, at the following times:

Friday, November 4, 1994 - 8:30 a.m. - Opening Session Sunday, November 6, 1994 - 9 a.m. - Second Session

A member of the Credentials Committee will be present at the Meeting Registration Desk on Thursday, November 3, 1994, from 3-5 p.m., and Friday, November 4, 1994, from 8-9 a.m. to certify Delegates. Delegates must bring their Credential Cards for presentation at the Registration Desk. Delegates must wear their badges to be seated in the House of Delegates.

Reference Committee Hearings

Reference Committee hearings are scheduled to begin Friday, November 4, 1994 at 2 p.m.

Elizabeth P. Kanof, MD, President Thad B. Wester, MD, President-Elect John A. Fagg, MD, Speaker Charles L. Garrett, Jr., MD, Vice-Speaker Carolyn R. Ferree, MD, Secretary-Treasurer Robert W. Seligson, Executive Vice-President

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Necrotizing Fasciitis and Myositis Caused by Group A Streptococci

Epidemiology, Diagnosis, and Treatment of "Flesh-Eating Bacteria"

Igor Z. Abolnik, MD, and Daniel J. Sexton, MD

Soft tissue infections due to group A streptococci (GAS) have been recognized for more than 70 years, yet our understanding of the enormous clinical spectrum of disease caused by GAS is still evolving. The clinical disorders range from impetigo and uncomplicated cellulitis (erysipelas) to a toxic shock-like syndrome and two conditions characterized by sometimes extensive, even lethal, soft tissue destruction—necrotizing fasciitis and myositis. These latter conditions have achieved recent notoriety in the popular press.

Necrotizing fasciitis is an uncommon infection of subcutaneous tissues that is often, but not exclusively, caused by group A streptococci. Streptococcal myositis, another uncommon syndrome, frequently coexists with necrotizing fasciitis. Both entities have been sensationally described in recent television and print media as infections due to "flesheating bacteria." In view of the extensive media attention, we discuss recent epidemiological information about necrotizing fasciitis and myositis caused by GAS. It helps to put the recent lurid and alarming press coverage into perspective.

The authors are with the Division of Infectious Diseases, Department of Medicine, Box 3867, Duke University Medical Center, Durham 27710.

The History of "Flesh-Eating Bacteria"

Necrotizing fasciitis was first described by Pfanner in 1918.² Six years later, Melency provided the first English-language report in which he described 20 cases of "hemolytic streptococcal gangrene." The infections he noted usually followed trauma to the skin and often involved the extremities. All age groups were involved. Only four of Dr. Meleney's 20 patients died, probably because he used prompt and decisive surgical intervention as the primary treatment.

Even before the discovery of antibiotics, an overall improvement in socioeconomic conditions, including cleaner and less crowded living conditions, probably contributed to the decreased incidence and severity of GAS infections noted from 1930-1950. This decline continued from 1950 to the mid-1980s, during which time there were few reports of necrotizing streptococcal infections. In 1987, a streptococcal, toxic shock-like syndrome (STSLS) caused by GAS was first described, and subsequently there have been numerous reports describing the clinical features and pathogenesis of STSLS.

In the latter 1980s a number of reports of necrotizing GAS infections appeared, suggesting a sudden increase in the incidence of severe forms of streptococcal disease in the United States. During the past 18 months, sensational media reports about this devastating but infrequent disease have created near hysteria in residents of North Carolina as well as throughout the US and abroad. North Carolina doctors report phone calls and inquiries from patients with minor soft tissue symptoms who want reassurance that this "...flesh-eating strain of streptococcus will not strike them and their families like a thief in the night."

Epidemiology of GAS Infection

Despite an apparent recent increase in incidence, necrotizing fasciitis and myositis due to GAS remain rare. A large retrospective survey of GAS infections in Pima County, AZ, found that only 6.3% produced necrotizing fasciitis. The Centers for Disease Control (CDC) estimates the annual incidence of all invasive GAS infections in the US at 10,000-15,000 cases. Necrotizing fasciitis occurs in 5%-10% of those cases (that is, 500-1500 cases each year in the US) with a mortality of about 28%.8 These CDC estimates imply that necrotizing fasciitis causes less than 500 deaths in the US each year (maybe less than 150).

It is not clear whether the incidence of GAS infections in general-and necrotizing fasciitis and myositis in particular-have increased since the US stopped active surveillance of this infection in 1991. Indeed, the opposite trend may have occurred since epidemiologic data from late 1980s indicated a decrease in the incidence of invasive GAS infections.6 Since 1992, the total number of systemic GAS isolates in England and Wales has remained stable.8 However, the previously mentioned retrospective survey of Pima County, AZ, did find a statistically significant increase in severe manifestations and consequences of GAS infections.7 Specifically, Hoge and colleagues noted a significant increase in incidence of hypotension, renal insufficiency, and desquamation (probably due to STSLS) from 1985 to 1990. Six patients with STSLS were described and all were encountered after 1988 (a finding that was statistically significant). In Pima County, invasive GAS infections seemed to be more common in Native Americans, Hispanics, and non-Hispanic black patients than in white non-Hispanics (the crude incidence rates in Native Americans were 14.5 times higher than those in the non-Hispanic white population⁷).

Microbiology and Epidemiology

Streptococcus pyogenes can be serotyped according to its M- and T-proteins. This typing system, together with grouping systems based on Lancefield carbohydrate antigens and on exotoxin and protease production, allows in-depth seroepidemiological investigations of GAS infections. Several recent studies have linked GAS having M-types 1 and 3 (especially M-Type 1) with necrotizing skin infections; these same bacterial strains often elaborate protease and pyrogenic exotoxin as well.7,9-11 A CDC survey of severe GAS infections showed a significant recent increase in the frequency of isolation of M-Types 1 and 3, and a decrease in the frequency of isolation of M-Types 4 and 12 during 1980-1989 compared to 1972-1979.10 There is also a clinical and pathological association between streptococcal M-type, the production of exotoxins (such as pyrogenic exotoxin A) and the streptococcal toxic-shock-like syndrome. Because of this overlap in pathogenetic factors, it is not surprising that Stevens et al found necrotizing fasciitis in eight of 20 patients with STSLS and soft tissue infections (some, not all, also had streptococcal myositis; one had myositis alone).^{1,11}

In addition to changes in the frequency of isolation of specific M-types, other changes in the epidemiology of GAS infections may have occurred as well. Until recently, most cases of necrotizing fasciitis due to GAS involved older patients with multiple medical problems, but many recent reports describe this illness in young, previously healthy individuals who have suffered minor skin trauma. The significance and reasons of this apparent change are unknown.

Most cases of necrotizing soft tissue infections due to GAS are sporadic, but occasionally they occur in clusters because of secondary cases among close contacts of infected persons. Nosocomial clusters may also occur.¹² A study of one small cluster in Sweden found low levels of antibodies against M-Type 1 in patients with bacteremia and in those who died; exposed individuals with higher antibody levels against M-Type 1 antigens did not get sick.¹³

The Clinical Picture— Diagnosis and Treatment

Necrotizing fasciitis may initially mimic cellulitis, especially since gas production leading to soft-tissue crepitus is a variable and sometimes late finding. However, pain and systemic toxicity are usually severe when fasciitis or myositis is present, and swelling with tense edema is often a dramatic finding. A careful exam may disclose sensory loss over the involved area.

If fasciitis or myositis is suspected, it is imperative that a tissue specimen be obtained promptly (by aspiration or biopsy) for culture and examination by Gram's stain. Whenever necrotizing fasciitis or myositis occur, GAS should be considered as an etiology, but the differential diagnosis includes infection by Clostridium perfringens, C. septicum, C. novyi, and Staphylococcus aureus.1 Aspiration of severe GAS infections may reveal thin, watery fluid ("dishwater pus") loaded with gram-positive cocci in chains. Plain films of the involved area (looking for subcutaneous gas) and measurement of serum creatinine kinase are important. Blood should be cultured before beginning treatment since most patients with necrotizing GAS infections are bacteremic. Prompt surgical intervention (often including fasciotomy and, sometimes, amputation) is usually necessary.

Group A streptococci are uniformly sensitive to penicillin, and penicillin G is the drug of choice; high doses should be given promptly. In penicillin-allergic patients, clindamycin or a first-generation cephalosporin are acceptable alternatives. Erythromycin is *not* recommended because some strains of GAS are resistant.⁸

Due to the occasional existence of disease clusters, symptomatic contacts of patients with necrotizing fasciitis and myositis due to GAS should be cultured for GAS. They may warrant therapy if they have symptoms of acute infection and if the cultures are positive. Due to the frequent association of STSLS and GAS-induced necrotizing fasciitis and myositis, patients with any of these conditions need careful attention to volume replacement and respiratory status; associated life support measures may be necessary.

Summary

Despite the absence of conclusive proof, the incidence of necrotizing fasciitis and myositis due to GAS may be increasing, possibly related to shifts in the proportion of GAS isolates of M-Types 1 and 3. These M-types (or the production of exotoxins and proteases associated with them) may lead to severe GAS infections in individuals who lack immunity.

Recent television and newspaper reports underscore the potential virulence of GAS even in young and previously well individuals although they do this at the expense of raising fear in the general population. It is unfortunate that these reports often fail to emphasize the rarity with which GAS causes myositis and fasciitis. The overall incidence of these dreadful diseases is very low. In fact, by extrapolating the CDC estimates, we sus-

pect that only 14-40 cases of GAS-induced myositis or fasciitis occur annually in North Carolina. Each of these infections is a true calamity for the affected patients and their physicians, but together they represent only a tiny fraction of all GAS infections that occur in North Carolinians each year.

It is relatively easy to separate un-

complicated streptococcal cellulitis from GAS-induced fasciitis and/or myositis by bedside exam and old-fashioned clinical judgment. Prompt and aggressive surgical debridement and antibiotic therapy are needed for all patients with myositis and/or fasciitis due to GAS; others can be treated with simple beta-lactam antibiotics and careful observation.

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Facing the Challenge of HIV

Primary Care Physicians Have an Obligation to Care for Those Infected

Sheri A. Keitz, MD, PhD, and John A. Bartlett, MD

Today, more than 1 million people in the United States are infected with the human immunodeficiency virus (HIV); 356,000 cases of acquired immunodeficiency syndrome (AIDS) have been reported to the Centers for Disease Control; 218,000 Americans have died from this illness. Worldwide, 13 million persons are infected with HIV—a number expected to grow to 40 million by the year 2000. No matter how tightly we close our eyes, the HIV epidemic is here and will not go away.

North Carolinians, especially, cannot ignore the burgeoning HIV epidemic. The American South now reports the largest number of AIDS cases of any region in the US and is experiencing the largest percentage increase each year—greater than the West and the Northeast! As of July 29, 1994, 4,900 persons with AIDS had been reported to the North Carolina HIV/STD Control Program. The incidence of AIDS cases in Charlotte, Greensboro, Raleigh, and Durham is similar to Fresno, San Jose, Cleveland, and Providence. AIDS has been reported in all 100 North Carolina counties, and seroprevalence surveys for HIV infection among women delivering babies in North Carolina suggest a nearly equal distribution of HIV infection in urban and rural counties. These seroprevalence surveys predict that we will soon have an increasing number of persons with full-blown AIDS throughout our state, including rural locations. Given North Carolina's discouraging history regarding epidemics of sexually transmitted disease (North Carolina ranked third among the 50 states in the total number of reported syphilis cases in 1993), our HIV epidemic appears firmly entrenched and ever-increasing.

In spite of the growing AIDS burden in this state, nearly half of North Carolina's primary care physicians say they would rather not care for HIV-infected patients. But, given the spread of this unrelenting virus, the day comes ever closer when *every* physician will have to face this issue. When a person infected with HIV comes to you, will you choose to face the

challenge of providing care? We present here a brief consideration of the legal and professional viewpoints that you might consider when the time comes to decide where you stand.

"Courage consists in equality to the problem before us."

-Ralph Waldo Emerson, "Society and Solitude"

The Law. The medical community is concerned with the law and how it can shape our practice patterns, but we cannot look to the legal system to tell us we have an obligation to treat those infected with HIV. Common law supports a physician's right to chose the domains of practice. The physician-patient relationship is meant to be voluntary and consensual. If someone stops a doctor in the street and asks for advice, the doctor is under no obligation to offer his or her services. Likewise, doctors may choose to build a practice around a greater number of cardiology patients and fewer diabetics because they enjoy learning about the new advances in interventional cardiology. No requirement says individual physicians must treat individual patients. The obligation to provide treatment for patients is societal rather than individual. As long as *someone* provides care for the HIV-infected, others may choose not to.

The law protects certain patient rights as well. Patients cannot be denied urgent services. Emergency rooms must evaluate and treat every patient regardless of HIV status. In theory, all patients are also protected against organized prejudice. Public and state hospitals cannot refuse to care for a patient on the basis of race, gender, or handicap. The logical extension of this policy would prohibit discrimination on the basis of sexual orientation, intravenous drug use, or HIV seropositivity. In fact, many states—including North Carolina—treat HIV infection as if it were a handicap to offer stronger protection for patients under anti-discrimination laws.

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Anti-discrimination laws do not apply to the actions of individual private physicians. If a new patient seeks HIV-related services, the patient may be denied care. Furthermore, the physician is not obliged to offer advice about where the patient might go to find care. That burden falls on the patients who must make their way to public hospitals or private physicians willing to treat them. Often these patients, already saturated by the burden of their incurable illness, do not have the resources, energy, or know-how to get to appropriate medical care. Then they suffer the inexorable progress in their disease without the benefit of treatments that can prolong survival and improve quality of life.

In contrast, patients who have already established a professional relationship with a physician are protected against abandonment. Once a physician-patient relationship has been established, the burden falls on the physician to provide either continuous care or to transfer the patient to an alternative source of care in a responsible and timely manner. Physicians generally accept this responsibility. Often the turning point in a physician's willingness to care for HIV-infected patients can be traced back to an already established patient—one who gave a face and a name and personal meaning to the previously faceless statistics.

"Whatever houses I may visit, I will come for the benefit of the sick, remaining free of all intentional injustice..."

—Hippocrates, "The Hippocratic Oath"

Professional Codes of Behavior. Without common law to mandate an obligation to treat HIV-infected individuals, we turn to professional codes of behavior. From the time of Hippocrates to William Osler, the profession has upheld a tradition of selfless care. This has always required sacrifice and courage on the part of physicians. When struggling to apply these general dictums to particular circumstances, we look to national and local professional organizations. The American Medical Association, the American College of Physicians, and the National Institute of Allergy and Infectious Disease have repeatedly issued policy statements urging all physicians to care for HIV-infected individuals. Local and state organizations have promoted similar standards but, unfortunately, there is no way to enforce them. Documenting refusals to care for HIV patients would require a policing of our practices that is neither practical nor desirable. Even if we could document refusal to care for patients, professional societies could only revoke the membership of an individual physician. They have no other course of action. By and large, physicians are free to uphold or ignore the recommendations of their professional organizations. Only at an institutional level can such guidelines be enforced because hospitals can grant or deny privileges and admitting privileges.

Occupational Risks. Professional standards are not altered by

the risk of personal jeopardy to the physician. In our role as public servants we are expected to practice medicine even when we place ourselves at risk. Firefighters battle flames; police officers fight crime; physicians fight disease. We train under harsh conditions, sacrifice sleep and personal well being, delay family life, ignore outside interests, and yes, at times we expose ourselves to life-threatening infectious diseases. That is our commitment to patient care. The integrity of the medical profession is built upon these profound sacrifices.

Now, 13 years into the AIDS epidemic, we know that there is a small but real risk from occupational exposure to HIV. We know the grave consequences to that infection. Reluctance to care for the HIV-infected is in part based on personal fear. On the other hand, abundant data are now available to conclusively demonstrate the low risk of HIV transmission from patients to health care workers. The risk from a single percutaneous exposure to blood known to be HIV positive is estimated at between 1 in 250 to 1 in 300.^{2,3} Surgeons who sustain a deep muscle cut from a misplaced scalpel in a field full of blood, run risks that may be slightly higher (1 in 200). We know of no risk to the primary care physician sitting in the office, taking a history, doing a thorough physical examination. As doctors, we are compelled to weigh risks rationally and not base our actions on unfounded fears.

Ongoing Medical Education. Some physicians argue that they lack the information necessary to care for HIV-infected individuals. They say HIV is a "new disease," that patients develop rare infectious complications. Many feel that they were not "trained" in how to care for these patients.

We all recognize the professional obligation to remain up to date on information about the ever-changing practice of medicine. Furthermore, in our state (and many others) continuing medical education is a requirement for maintaining medical license or hospital privileges. Doctors don't refuse to use ACE inhibitors for the treatment of congestive heart failure because that class of drugs did not exist when they were in school. From the day that a medical student begins the first clinical rotation, continuing medical education is part of the job description.

It is unacceptable for physicians to avoid HIV under the guise of lack of knowledge. There are a number of summaries and explicit practice guidelines that can steer a practitioner through the primary care of HIV-infected individuals. ⁴⁻⁷ During the prolonged asymptomatic phase of the disease, primary care consists largely of coordinating preventative and screening measures and monitoring CD4 counts. Even patients with symptomatic HIV often require only two classes of therapy: prophylaxis against pneumocystis carinii pneumonia (PCP) and antiretroviral drug therapy.

Fear of late-stage AIDS is not reason to shun all patients who are HIV positive. The role of the primary care physician need not include diagnosis and treatment of late-stage AIDS patients who present with rare, exotic infectious diseases. This role can properly be the province of an infectious disease consultant. Even patients who develop full-blown AIDS most

often present with one of a handful of predictable opportunistic infections such as PCP, mycobacterium avium complex, or cryptococcal meningitis. When more complicated management is necessary, all you need is the name of a reliable consultant who can navigate the end stages of AIDS with you (see Appendix, below).

The Bottom Line. Given the continued spread of HIV, the involvement of primary care physicians is inevitable. There is no legal or professional decree that will force any physician to care for HIV-infected patients. Each physician must answer only to his or her conscience. But the time will come when a

patient to whom you are already committed is diagnosed with HIV infection. At that time the theoretical "Why should we?" will become the reality of "Why should I?" Then you will not look to the law, the AMA, or the ethics committee to chose your course. You will act on the strength of your own commitment as a doctor, the strength of your vow to the patient before you.

"Tis not the many oaths that make the truth, but the plain single vow that is vow'd true."

-William Shakespeare, "All's well that ends well"

Appendix

CDC AIDS hotline: 800/342-AIDS

NC infectious disease clinics:

Bowman Gray, Winston-Salem 910/716-4246

East Carolina Univ., Greenville 919/816-2550

Duke University, Durham 919/681-6060

University of NC, Chapel Hill 919/966-2536

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For All the Commitments You Makes

Medical Student Essay Winners

Editorial note: Each year the Medical Student Section of the North Carolina Medical Society sponsors an essay contest for students at North Carolina's four medical schools. The *Journal* is pleased to publish this year's winners.

It is noteworthy that AIDS is the topic of two of these essays. First-prize winner Amy E. Ward, a fourth-year student at Bowman Gray, recounts her accidental needle-stick exposure to the blood of a potentially HIV-infected patient. In a horrifying instant she is plunged into the uncertainty, loneliness, and isolation of the "sick role." The confidentiality of her HIV testing, done by number, not by name, becomes a metaphor for the anonymity and depersonalization that illness confers. Out of her experience comes a new empathy for the HIV-infected and a deeper awareness of what it means to be a physician.

David L. Fairbrother, a second-year student at East Carolina, argues that physicians have a duty to treat HIV-infected patients. The threat of contagion, he contends, does not override the professional responsibility, "inherent in the practice of medicine," to accept the risk, just as the solider accepts the risk of getting killed in combat. It is a compelling argument, forcefully presented.

Third-place winner Mark Hiatt looks into the near future and sees the need for a new breed of physician-manager, trained in both business and medicine. It is no longer enough, he contends, to know the art and the science; in medicine's brave new world, one has to know the economics as well. Hiatt is pursuing his MD and MBA degrees jointly at Wake Forest's Bowman Gray School of Medicine and Babcock Graduate School of Management. He is on his way to acquiring the skills that he thinks will be essential for the next generation of physicians.

The Journal congratulates these essayists. By wrestling with the complex ethical and economic issues that confront us, they deepen our appreciation of how privileged a profession medicine is, and how profound our responsibility to preserve its values.

—William G. Porter, MD, internist, Carolinas Medical Center, Charlotte

HIV Testing: A Medical Student's Perspective

First Place—Amy E. Ward, MS IV, Bowman Gray School of Medicine, Winston-Salem

I never really thought about what it felt like to be tested for HIV. I never considered how isolated a patient might feel, alone and scared, sitting outside the blood draw lab. I never thought about how difficult it might be a for a patient to tell her loved ones that she had to be tested for HIV and explain that HIV is the virus that causes AIDS. I never thought about—not until I had to be tested for HIV.

It was a typical day in my second year of medical school. I got up early so I could be at school in time for the 7 a.m. patient blood draw. I wanted to learn how to draw blood. I'd had the lecture and practiced on a classmate. I'd even drawn blood on a patient or two. The phlebotomy elective lasted for two weeks, and this was only day three. I had a lot of practicing to do.

The morning got off to a rough start. I was zero for three and the phlebotomist was only one for three. The next patient

on my list seemed sicker than the others. She was wearing a face mask, coughing every other breath, and terribly pale. She was also a difficult stick, but we finally managed to get the blood we needed.

Then it happened. I got stuck with a dirty needle. I couldn't believe it! How could it happen? Maybe it didn't. No, it did! See the blood under the glove? Who do I tell? Do I even want to tell anyone?

As it turned out, I didn't get the option of not telling. The phlebotomist saw the blood. Then there was a flurry of activity. Someone had to call risk management. I had to go to student health.

At the clinic I was advised of all my options. School policy required that I be tested periodically throughout the next year. First a baseline, then tests at one month, three months, six months, and one year. The patient would be

asked to sign a consent form to permit HIV testing. Finally, if I wanted, I could be started on AZT to slow the replication of the virus if I was indeed infected. I was also reminded of the small chance of actually contracting the virus even if the patient was HIV positive. At the time that information offered little consolation.

How was I supposed to decide about AZT therapy? I didn't need it if I wasn't infected. But, if I found out later that I was infected, would starting AZT at the onset have been beneficial? And what about side effects? I had so many

"In a mere two hours I had gone from being a medical student, a fairly esteemed position, to being a 'Hey, you!' A number with a face."

questions. My physician could offer little advice. It was, after all, my decision. Finally I decided against AZT. The chances of my being infected were very small. I would wait until I knew the patient's HIV status.

Finding that out proved difficult. The patient died shortly after the blood draw, and her chart could not be located. I had to wait until the chart could be found to learn whether she had been tested for HIV. That took two weeks.

In the meantime, I was sent off to the lab to have my blood drawn. There I discovered that I did not have a name anymore. I had a number because HIV testing has to be completely confidential. I signed the consent form to be tested for HIV, something I would do four more times during the next year. At the lab I had to wait behind other people who had names. Once my turn came, the lab technician said, "Hey you! We're ready for you now." You see, the number had to remain confidential as well. By then I was on the verge of tears. In a mere two hours I had gone from being a medical student, a fairly esteemed position, to being a "Hey, you!" A number with a face.

The worst part was the way the technician looked at me. I don't know what was going through her mind, but her expression told me that it was not friendly. I felt an overwhelming need to explain that I was a medical student, that I had been stuck by a dirty needle. Her expression changed and she became quite amicable after my explanation. She drew my blood into two red-topped tubes. There was nothing to do after that but wait.

So wait I did. I waited two weeks to find out that my baseline HIV status was negative. I was relieved, but I still didn't know the patient's status. The chart appeared to be lost.

The next six months were very stressful. I decided not to tell my family. There was no reason to worry them unnecessarily. My boyfriend was a different matter. He deserved to know. Fortunately he was understanding and supportive. Even though my HIV tests continued to come back negative, not knowing the status of the patient was worrisome. Every time I got a cold, I wondered if my immune system was beginning a slow, progressive decline.

As the months passed by things became easier. The sixmonth test results returned negative; I began to relax. Most people exposed to HIV seroconvert within three to six months of exposure. I felt like I had crossed some magical line into a safety zone. A common cold once again was nothing more than a common cold.

I never did get used to "Hey, you!" And I always felt compelled to tell my story about being stuck with the dirty needle when I went to the lab to have blood drawn. I learned a lot about how it feels to be "anonymously" tested for HIV. It was very scary. It was difficult to talk about, even with the people I trusted the most. I considered changing professions.

I have a new empathy for patients being tested for HIV. I understand their anxiety. I also have a better understanding of how isolated HIV patients feel. As a result of my experience, I try to spend time just talking with the HIV patients. Letting them talk about their feelings seemed to help. They have a fatal disease, but they still have a lot to say. Their strength and courage in light of a continually falling CD4 count is remarkable and should inspire all of us in the medical profession. We should strive to overcome any prejudices we may have about these people. The virus deserves our anger and disgust; the patients, our empathy and understanding.

I hope this experience helps me to become a better doctor. I guess the best any of us can hope for is to become stronger, better people as a result of such difficult experiences.

"I learned...how it feels to be 'anonymously' tested for HIV. It was difficult to talk about...! considered changing professions."

Oh, I almost forgot, how did I get stuck? I was cleaning up after the blood had been collected. I placed the dirty needle and vacutainer into the holder that disengages the needle from the vacutainer. The needle came off, but it didn't fall into the container. I didn't see that the black part of the needle, the part that pierces the collection tube, was sticking out of the disposal container. When I reached over to get a Band-Aid for the patient, I got stuck by the back side of the needle. So the other lesson I learned from this experience is to check your equipment carefully. No matter how careful you are, or how well equipment is supposed to work, accidents can still happen.

Can Physicians Deny Treatment Based on Fear of AIDS Infection?

"...the duty of the physician

is to heal (the) sick. This duty...

does not make provisions for

Second Place—David L. Fairbrother, MS II, East Carolina University School of Medicine, Greenville

The incidence of AIDS in the general population is increasing at an alarming rate. We, the health care providers of the future, will be faced with the ethical ramifications of this deadly disease in a way that our predecessors never imagined. The shadow of AIDS has created a paranoia that affects physicians and non-physicians alike. This fear has already made an impact on the way medicine is practiced and brings up an important ethical matter that needs to be considered.

As a result of the constant risk of infection, some physicians decide whom to treat based on whether they feel the risk to their own well-being is too great. Although they may explain their decision differently, their underlying concern is the fear of becoming infected. I believe that physicians have a fundamental obligation to treat their patients and that the risk of personal infection should not be a primary consideration for denying treatment.

Many physicians claim that they should have the discretion of deciding whether to treat AIDS patients since such treatment increases their risk for contracting the disease. And since they are the ones providing a service, physicians feel that they should be able to control the conditions

under which they provide that service.

I believe that physicians have a fundamental duty, albeit a selfless one, to treat a patient without regard to personal injury—even HIV infection. This duty is inherent in the practice of medicine. Medicine involves interacting with sick people. Therefore, physicians understand that they will be exposed to certain illnesses, and with this exposure, to the risk of infection. Consider the analogy of an individual who joins the military. At the outset, soldiers accept that one day they may be shot. Just as the soldier accepts that one day he or she may be in the line of fire, the physician accepts that one day he or she may be at risk for contracting AIDS from a patient. This risk is an accepted part of joining the profession and is one that is not debatable.1

I don't intend to portray physicians as fearless "disease fighters" who blindly confront AIDS without respecting the risks of infection. On the contrary, they should be aware of the risks, taking every reasonable precaution available short of denying care to the patient—to ensure that they do not become infected.

Some physicians may argue that they have a right to refuse to treat an AIDS patient to protect their other patients. By refusing to treat HIV-positive patients, they claim that there is no possible way they can contract this disease

through their practice of medicine. They say that this will allow them to continue to offer their professional services to other patients who do not suffer from AIDS, without jeopardizing the health of these patients. Although this argument may seem appealing and even considerate at first glance, it boils down to the fact that the physician believes that he or she has a right to deny treatment to someone based solely on exposure to the HIV virus. The duty to help a patient—any patient—supersedes that right.

The duty of a physician to care for people with AIDS (or any other illness) is not required of people outside medicine. In essence, refusing to treat AIDS patients on the basis of personal discretion blatantly disregards the very foundation on which the profession is built: namely, the duty of the physician is to heal those who are sick. This duty encompasses the entire realm of illness and does not make any

> provisions for choosing which diseases should be excluded.

A few physicians justify their decision to deny treatment by arguing that the risk of con-

tracting AIDS is too great to be choosing which diseases left to chance. They suggest that should be excluded." if they continue to treat these patients, becoming infected is inevitable. Leaving nothing to chance, they try to eliminate the risk altogether. In actuality, the risk of contracting AIDS from any single exposure to contaminated body fluids is 1% or less. Granted, in some specialties the frequency of

> exposure means the long-range potential for infection is considerably higher. However, careful adherence to universal precautions should greatly diminish this risk. Physicians who decide to practice in such specialties should be aware of the increased risk for HIV infection. They should enter these fields knowing of the increased risk and accepting it as part of their specialty that cannot be dismissed.

Advocates of the viewpoint that a physician should have the option of not treating AIDS patients suggest that a particular numerical value of "risk of infection" should be a criterion for deciding whether or not to treat patients. They claim that a "risk value" above a particular number is "excessive," and that physicians should have the option of not treating those who have the HIV virus. In response to this argument, it should be noted that many other diseases are more contagious than AIDS. If a standard "line of treatment" is drawn with HIV, physicians could potentially have the option of refusing to care for patients with such a wide variety of ailments, that many would go untreated. We could end up with a medical community that is afraid to treat

anything more contagious than the common cold.

Some physicians rationalize the denial of treatment by considering the outcome of the disease. For them, the possibility of dying from AIDS is too great a risk; treating infected individuals is parallel to "tempting death." They feel that the severity of AIDS, once contracted, far outweighs the benefits of professional activities that place them at risk.

I would remind these physicians that their responsibility is to care for the patient, not to avoid harm to themselves. Of course, physicians should not purposely place themselves in positions in which they would almost certainly become infected. However, based on what we currently know, the HIV virus does not normally present this type of situation.

Like Emanuel, ¹ I agree that pregnant physicians should have the option of avoiding direct care of AIDS patients, but I believe that this option should extend to the treatment of patients with other communicable diseases as well. The primary consideration is to protect the unborn child instead of the physician, because the child does not have the ability to decide for himself or herself.

In conclusion, I believe that decisions about whether or not to treat HIV-positive patients are a question of service. The medical profession is service-oriented. When individuals decide to become physicians, they agree to take on certain obligations. These obligations require that the physician treat the sick, but also put aside personal considerations in favor of those of the patient. When physicians place their own concerns ahead of their patients', they call into question the very purpose of the medical profession. Granted, the physician may risk contracting AIDS from the patient and the prognosis of AIDS is death. However, neither point is up for discussion. They are both accepted parts of medicine. I am not suggesting that fear of contracting AIDS is unnatural or unacceptable, merely that it does not excuse us from the fundamental obligation to serve. When the physician's fear dictates whether or not an individual will receive treatment, who is really being served—the patient or the physician? \Box

1 Emanuel EJ. Do physicians have an obligation to treat patients with AIDS? N Engl J Med 1988;318:1686-90.

Managing Medicine: "Dr." Stands for Doctor and Director

Third Place—Mark Hiatt, MS I, Bowman Gray School of Medicine, Winston-Salem

When I complete medical school, I will recite a 2,400-year-old declaration known as the Hippocratic Oath. I will pledge to use my knowledge for the welfare of the ailing and to exercise my efforts solely for the cure of my patients. Yet in this season of dramatic change in the health care system, doctors of my generation must do much more than just treat the sick. Soaring health care costs are forcing physicians to focus on efficiency. A doctor's black bag of skills must include more now than in the days of Hippocrates. Beyond a knowledge of disease and treatment, physicians today must have an understanding of economics and management. This revolution in medicine will require a new type of physician—one who, with a firm grasp on effective management skills, can handle both the cost and quality of care as a "doctor-director."

Economic conditions are changing the mode of medical reimbursement from the traditional fee-for-service pattern to some form of managed care in which the delivery of medical services is more vertically integrated. As multidisciplinary groups and their ancillary, supportive functions line up under one operational umbrella, directors at the top will need to know about the intricacies of business management in addition to the complexity of caring for patients.

Physicians, particularly those with management expertise, may be in the best position to oversee the switch to managed care. As competent physicians they can maintain or improve the outcomes of care while, as effective management expertises.

ers, they significantly reduce the cost of care. To make their business operation run smoothly and compete successfully, doctors must learn how to market their services, network with other health care providers, and negotiate contracts. They must learn how to use management information systems and financial reporting systems and how to administer and allocate capitated-risk pools. As managers who effectively focus on efficiency, physicians may make the treatment of disease more successful as well as less painful to the pocketbook.

To become physicians who efficiently manage the business of medicine, doctor-directors must become as good with a balance sheet as they are with a stethoscope, as effective in their interaction with creditors and customers as they are in caring for patients. Graduate study of both medicine and management would prepare aspirants for a career in health care administration. In their undergraduate years, these prospective doctor-directors would acquire the basic knowledge of biology, chemistry, physics, and calculus that medical schools require along with the quantitative, leadership, and communication skills necessary for the successful study of management.

In graduate school, the MD/MBA candidates would complete their medical and management education separately during a six-year period or participate in a five-year-long integrated program. Seven schools in the nation (including Wake Forest University) offer such programs. One

possible course of study for a joint MD/MBA degree program begins with one year in business school followed by two years of basic medical science education and two years of clinical rotations in medical school. Students conduct the field study project required by business schools during the summer following their first year. They complete electives at the business school during their third and fifth years while attending medical school.

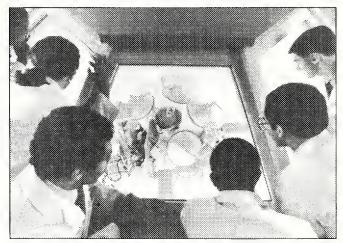
No break follows the five or six long years of intense study. After graduation the aspiring doctor-directors need to complete several more years of medical training. For specialists such as radiologists, this residency requirement adds as many as four years to the five already completed. Aspirants beginning such an extended career track in 1994 would complete their training in 2003.

After the rigors of residency, the doctor-director is in a position to assume a leadership role in administering the delivery of health care. Such a role could range from the doctor's managing the finances of his own practice to supervising the resources of a medical center while treating a limited number of patients on the side. In a new-age homage to the Hippocratic Oath, these physicians would exercise their efforts for the *economical* care of their patients.

Training in management and medicine has another advantage. Doctor-directors, as administrators of health care organizations, will supervise fellow physicians. Their medical background will protect them from criticism frequently aimed at health care administrators without such training—that they are so locked into numbers and economics they cannot see the big picture. Physicians would appreciate having a fellow physician in charge of their hospital, health care organization, or medical center—one who can efficiently oversee finances and administration while possessing a profound, personal understanding of the medical field in its complexity. Such a director would merit their respect and receive their support and cooperation.

Whether or not they pursue a graduate degree in management, all doctors will need excellent management skills in addition to medical expertise in the more vertically integrated health care system. They will need to focus on efficiency in order to treat disease successfully and to stem the cancerous growth of costs. The Hippocratic Oath of the 21st century will ask physicians to use their business and medical knowledge for the physical and financial welfare of the ailing and to exercise their efforts for the economical cure of their patients.

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Health Watch

VOLUME 55 / NUMBER 10 / OCTOBER 1994

Dermatology

YOUR SKIN

The largest organ of the human body is not the lungs, the stomach, or even the digestive tract, but the skin. Your body's outer layer covers some 20 square feet and weighs around six or seven pounds. It is a remarkable structure that protects the vital organs, keeps the body from dehydrating, regulates the body's temperature, and helps the body rid itself of wastes. Moreover, the skin regenerates itself every 28 days, replacing worn out cells with new ones. In your lifetime, you will shed some 40 pounds of dead skin.

Yet for all of these amazing qualities, the skin is also very sensitive. Indeed, the abuse that we inflict upon our body's largest organ is severe; similar self-destruction of any other bodily system would be unthinkable. Humans are truly unique in the way we purposefully contribute to the destruction of our most precious outer layer.

Compiled by Bob Burns, Assistant Director, Communications, North Carolina Medical Society, PO Box 27167, Raleigh, NC 27611

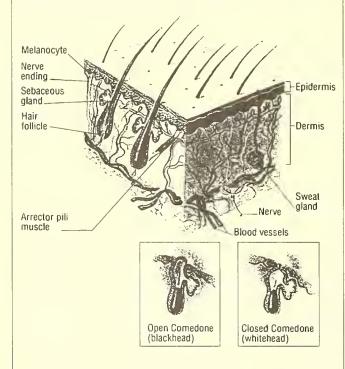
How it is put together

Human skin is a remarkably complex structure composed of several layers, each with its own functions and characteristics and containing many sublayers. The outer-most layer, the epidermis, is the body's protective coat. It is made up of 15 -20 sublayers and it constantly renews itself. The epidermis varies in thickness depending on its location on the body. Areas of greater friction, like the soles of the feet, are much thicker.

The epidermis is cemented to an inner, thicker layer of connective tissue called the dermis. The dermis contains collagenous and elastic fibers as well as a rich supply of blood vessels, glands and nerve endings. It is the connective tissue of the dermis which gives skin its elasticity and resiliency. Not surprisingly, it is the collagen and elastic fibers that break down with age. As the fibers begin to stiffen, the skin wrinkles and loses its elasticity.

Within the dermis are found two of the skin's most important glands. Sebaceous glands are connected with hair follicles and are found throughout the skin except for the palms and soles of the feet. These glands produce an oily substance called sebum, which helps keep hair from drying out and becoming brittle and also helps form a protective film to prevent excess evaporation from the skin. When sebum collects in the sebaceous glands of the face, blackheads form. Contrary to popular belief, it is not dirt but the natural color of sebum that gives blackheads their dark color.

Other key glands found in the dermis are the sweat glands, which are found throughout most of the body. Unlike the sebaceous glands, these are most prevalent in the palms



and soles of the feet. Each sweat gland consists of a coiled end embedded in the subcutaneous tissue (located beneath the dermis) and a single tube that projects outward through the dermis and epidermis.

Also embedded in the dermis are hair follicles. In most mammals, the function of hair is to provide protection and insulation. Hair on the top of the head helps shield the scalp from sunburn. Eyelashes and eyebrows help keep foreign particles out of the eye. The hair in the nostrils and external ear helps to keep out dust and insects.

The hair also plays an interesting role as a sensory organ. A small muscle called the arrector pili is attached to each hair follicle. If it contract, the hair becomes erect and the follicle is dragged upward. This creates a roughened texture to the skin, commonly known as goose bumps.

How it works and what it does

The skin helps keep out foreign substances, regulate the body's temperature and shield the internal organs from the sun. Skin also has an immunological role. The skin contains special cells which serve as "sentinels" for the immune system. Because they are located at the body's surface, they are among the first cells to come in contact with foreign substances entering the skin. They recognize that certain substances are enemies to the body, and convey this information to the lymphoid system, helping the body get ready to fight off its invader.

Another function of the skin is to help regulate body temperature. If the body is cold and body heat must be conserved, blood vessels contract in quick, successive rhythms, allowing only a small amount of blood to flow through them. When the environment is warm, they contract at longer intervals, providing a free flow of blood. During exercise, when great quantities of generated heat must be expelled, blood flow through the skin is at its peak. The sweat glands pour water onto the surface of the skin, which absorbs body heat as it evaporates. Humans have 2,000,000 to 5,000,000 sweat glands—around several hundred per square centimeter. They are most concentrated on the palms of the hands and the soles of the feet. In addition to cooling the body, sweat glands keep the palms moist—that helps keep the hands sensitive and able to grip.

Skin is also important in regulating blood pressure. The flow of blood can be controlled by the opening and closing of certain vessels in the skin. These vessels allow blood to circulate through the capillary beds or to bypass them by being shunted directly from small arteries to veins.

Diseases of the skin

Despite all of its protective qualities, your skin is very sensitive and is susceptible to a vast array of diseases. One of the most common skin diseases, as any teenager will attest, is acne.

Acne

Acne develops when hair follicles become clogged. The follicle passes various substances to the skin's surface, including sebum and dead cells. The cells sometimes stick together and trap the sebum. Then, bacteria begin to grow in the mass of accumulated cells. As the material continues to accumulate, it pushes against the wall of the follicle and causes it to bulge into a tiny ball. If the follicle wall breaks, and the bacteria, oil, and dead cells irritate the surrounding skin, the result can be a pimple or cyst. The accumulating material may stretch the opening of the follicle - the pore- and the tip of the cells can be seen on the skin's surface. This is known as a blackhead.

Different factors can aggravate acne. One such factor is the hormone testosterone. Testosterone is needed for normal sexual development, but it also helps trigger the sebaceous glands to produce more oil. Thus, in the teen years, when production of testosterone increases significantly, acne tends to be worse. Heredity also plays a role - if both parents had acne you are more likely to experience it as well. Contrary to popular belief, fried foods and chocolate do not cause acne.

Sometimes acne can be so severe that it leaves scars but these can often be treated and cured. Your dermatologist may use a number of different methods to cure acne and its scars. Generally, treatment is designed to reduce the buildup of cells in the follicles, to reduce the oil and bacteria that build up in the first place and to eliminate existing blemishes and scars. Your doctor can recommend the best treatment for your skin type.

Psoriasis

A much more serious skin disease, but one that affects only 2-4% of the population is psoriasis. This disease can cause severe disfiguration in adults. The earlier the onset of psoriasis, the worse the disease is likely to become. Its symptoms include the formation of large, dry, silvery scales on the back, knees, elbows, buttocks and scalp. Removal of the scales may reveal tiny bleeding points known as Auspitz signs. Psoriasis can be treated, through both ointments and oral medications, but complete remission is rare.

Eczema

Dermatitis and eczema are interchangeable terms that refer to an inflammation of the skin. Symptoms range from mild itching to severe blistering. Nonallergic contact dermatitis is the skin's response to an irritant, commonly an acid, detergent or solvent. Allergic contact dermatitis occurs only in persons who have, after a previous exposure, become sensitized to the offending agent. Some common troublesome substances are nickel, rubber and chromium. Seborrheic dermatitis is less common and generally affects the scalp, the face, and areas where skin rubs against other skin (behind the ears, etc.). It is frequently found in infants, where it is known as cradle cap, and is characterized by a yellowish scaling of the scalp. Many types of eczema are treated with medicated shampoos and lotions.

Hives

Many of us have experienced hives. Hives are acute short-lived reactions that usually itch and remain visible for 30-45 minutes. The reaction is caused by the release of histamine from cellular stores within the skin. Common causes of hives include allergies to shellfish, citrus fruit, nuts and some

drugs. Such factors as temperature, exercise and exposure to sunlight may also aggravate hives.

Warts

Warts are not caused by handling frogs or toads. They are caused by a viral infection. Viral warts may affect anyone, but they occur in older children most often. Whether or not they are treated, most warts disappear after several months, although they often reappear. Common warts can be removed easily, and your physicians may either cut them off or freeze them with liquid nitrogen. About one-third of all patients treated for warts will get them again. In some cases, physicians treat severe cases of warts with oral medications.

Burns

The effects of burns on the skin are: 1) a large loss of water, plasma and proteins which may cause shock; 2) bacterial infection; 3) slower blood circulation; and 4) a decrease in urine production. A first-degree burn is one in which the damage is restricted to the epidermal layers of the skin, and the symptoms are redness, pain and tenderness. In a second-degree burn, both the epidermal and dermal layers of the skin may be affected, but regrowth of the tissue is still possible. Usually, blisters form on or beneath the skin's surface and the pain is significant. In third-degree burns, the epidermis and the dermis are not just damaged, but destroyed. The flesh may be charred and is lifeless and insensitive to the touch. Even with immediate skin grafts, regeneration of third-degree burned skin is very slow and frequently causes disfiguring.

Skin cancer

According to the American Cancer Society, over 500,000 new cases of skin cancer are reported every year, making it the most prevalent form of cancer. Skin cancer is one of the most easily cured cancers when diagnosed and treated early. More importantly, most skin cancer can be avoided. The plain, hard facts of the matter are that the ultraviolet rays of the sun can damage your skin, and repeated, unprotected exposure to the sun is dangerous. If you must be in the sun, cover and wear an effective sunscreen.

Basic Rules for Healthy Skin

- If you have dry or sensitive skin, wash your skin gently with a mild cleansing bar that contains moisturizers.
- Avoid excessive use of water and don't over bathe.
- Don't over scrub your skin or use rough washcloths or sponges.

- Avoid unnecessary exposure to the sun especially between 10:00am and 3:00pm. Whenever you're outside, use a sunscreen or a moisturizer with a built-in sunscreen of at least SPF-15.
- Use gel foundations, powder or gel blushes and noncomedogenic moisturizers because they do not clog pores.
- · Use astringents sparingly.

 If something on your skin looks suspicious, see your dermatologist immediately.

Skin care

Of the many ways to get that elusive, health glow, some of the best are proper diet, adequate exercise, and sufficient sleep. It's this simple: what's best for the body is best for the skin.

Balancing your diet means eating a variety of foods, with an emphasis on grains, fresh vegetables and fruits, and plenty of water.



1994

November, December..... Alzheimer's

Carolina Physician's Bookshelf

Timothy W. Lane, MD

Pelvic Inflammatory Disease
Gary Berger and Lars Westrom, editors
New York: Raven Press, 1992, 204 pages, \$73.50

Drs. Gary S. Berger of UNC-Chapel Hill, and Lars V. Westrom of the University of Lund, Sweden, have edited a small gem on pelvic inflammatory disease (PID). It is the only text devoted to this single important topic in more than 70 years. It's about time! Drs. Berger and Westrom have assembled 14 authors of international note representing England, Finland, and Sweden in addition to the United States.

As any primary care physician and gynecologist can attest, PID is a common problem in sexually experienced young women, albeit oftentimes a subtle diagnostic issue. Surveys conducted by the CDC in the late 1980s in the US found that more than 10% of women 19-44 years of age stated that they had been treated for PID in the preceding year. In both Europe and the US during the 1970s through the mid-1980s, public health reports of PID, hospitalizations for PID, and one of PID's sequelae, ectopic pregnancies, all increased substantially. Another serious sequela, infertility, also increased.

Direct and indirect costs for PID in the mid-1980s cost \$2.6 billion annually in the US. These facts amply demonstrate the importance of PID as a public and personal health issue. PID is important to many physicians because its most common cause, Chlamydia trachomatis, a sexually transmitted pathogen, truly knows no socioeconomic barriers. For example, C. trachomatis is the most common cause of PID in college students, and many university-based health care programs have been clinical research sites.

In the first four chapters, *Pelvic Inflammatory Disease* succeeds in documenting the nosologic, epidemiologic, microbiologic, and pathophysiologic issues related to PID. The chapters are well written and communicate simply and clearly, aided by excellent tables and graphs.

Dr. Lane is Professor of Medicine and Chief, Internal Medicine Training Program, Moses H. Cone Memorial Hospital, 1200 N. Elm St., Greensboro 27401. He is also a member of the *Journal's* Editorial Board. Book review editor is Dr. Edward C. Halperin, Professor, Division of Radiation Oncology, Box 3085, Duke University Medical Center, Durham 27710.

Chapter 5, "Diagnosis of Pelvic Inflammatory Disease" by Westrom and Jorma Paavonen, is worth the price of this monograph. These authors, particularly Westrom, established the "gold standard" of laparoscopic diagnosis and microbiologic confirmation of PID, and subsequently have been able to quantitate the diagnostic accuracy of less invasive clinical examination and pelvic ultrasound. Their early laparoscopic investigations established the important role of Chlamydia trachomatis and the importance of antimicrobial treatment specifically targeted against chlamydia.

Other important chapters include those by the CDC's Dr. Mary Guinan on "Prevention of PID" and Dr. David Soper on "Treatment of PID," both of which are relevant to primary care physicians who care for young women and men. In the near future, highly accurate and prompt diagnostic tests for C. trachomatis, using DNA amplification methods, such as PCR, will be available and will replace accurate, but laborious, culture methods and less sensitive monoclonal antibody detection methods. The recently established single dose regimen for C. trachomatis, in uncomplicated PID, of azithromycin (Zithromax) 1 gm by mouth is an important advance, especially for assuring patient compliance and treatment efficacy. These new methods of detecting and treating C. trachomatis should greatly improve diagnosis, appropriate therapy, and prevention. The monograph does not review these developments, perhaps reflecting rapid technological advances.

The remaining chapters on surgical management of PID and its consequences of chronic pain, ectopic pregnancy, and infertility are more complex and difficult for this internist/infectious disease physician. They exhaustively review the various surgical approaches to these complications of PID. They would be interesting to an obstetrician-gynecologist who could weigh the options and collective case series against his or her own personal experiences. No large, randomized, controlled trial of different surgical approaches exists, thus rendering many of the arguments difficult to assess critically. This is the only weakness of this excellent monograph and is more inherent to the science (or lack thereof) than the editors' lapses.

I recommend this monograph to primary care physicians, student health staff, and adolescent specialists and especially to obstetricians and gynecologists. It is comprehensive, well-indexed, and portable.

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The Use of Donated Oocytes for the Treatment of Infertility

L.M. Talbert, MD, B.R. Novik, PhD, and P. Johnson, BSN

For many years donated semen has been used to compensate for male infertility. The development of *in vitro* fertilization (IVF) and related technologies now makes it possible to implant donated oocytes in women who are unable to produce viable eggs from their own ovaries. In this paper we will address the indications for the use of donated oocytes, the related technical procedures required, and some of the ethical and psychological issues surrounding such use.

Indications for Using Donated Oocytes

Donated oocytes can be used to circumvent the natural or induced infertility of primary or secondary ovarian failure, severe female genetic disorders, failure of women who attempt IVF or a related procedure to respond to administered menopausal gonadotropins, or advanced maternal age. Candidates for IVF who respond poorly to gonadotropin administration are so unlikely to achieve pregnancy that most programs cancel treatment as soon as a poor response seems certain (although some patients do respond to increased gonadotropin dosage).

It is most common to use donated oocytes in older women who desire chil-

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dren. Not only are older women unlikely to conceive, but if conception does occur, there is a high risk for chromosomal abnormalities and spontaneous abortion.^{4,5} The reproductive impairment found in women older than 40 is due to the age of both uterus and eggs. The use of donated eggs from younger women along with large doses of replacement hormones can correct both defects and allow reproduction in older women.⁶

Selection and Evaluation of Oocyte Donors

Selection of suitable donors is probably the single most crucial task of a successful donor egg program. A few couples have a relative or friend who is willing to donate, but even these donors usually require the same evaluation as do anonymous donors.

At the North Carolina Center for Reproductive Medicine (NCCRM) we use American Fertility Society guidelines for donor selection and evaluation. We advertise in local newspapers, and we send women who respond a package describing the process and risks. If interested, they complete a genetic screening form. If no genetic contraindications are found, potential donors come to the office and the process of oocyte donation and associated risks are discussed in detail. Women who are still interested then

undergo a thorough history and physical examination.

In addition to a three-generation genetic history, genetic testing is carried out to search for hereditary anemias, cystic fibrosis, alpha-1 antitrypsin deficiency, and, in Jewish donors, Tay-Sach's disease. Common disorders that require rejection include a family history of diabetes, hypertension, alcoholism, or structural disorders such as cleft lip or palate, open spine defects, or congenital hip dislocation. Screening for infectious diseases includes tests for human immunodeficiency virus, syphilis, hepatitis B and C, and human T-lymphocytotrophic virus I. Women with genital viral infections (venereal warts, herpes) are not accepted, nor are women at high risk for HIV infection. In general, women older than 34 are not accepted as donors because of the need for subsequent genetic amniocentesis when older eggs are used.7

An integral part of the evaluation is at least one session with a licensed psychologist to exclude psychological contraindications to donation. The recipient couple undergoes the same psychological evaluation.

Because there is some risk involved, and because the donors are healthy women, we make every effort to obtain truly informed consent.⁸ We inform all potential donors in writing and in person of the potential risks of donation and the frequency of those risks to the extent that they are known.

Role of the Nurse Coordinator

A egg donor program of significant size requires a competent nurse coordinator. The menstrual cycle of donor and recipient must be coordinated so that embryos are transferred when the recipient's uterus is at a proper stage to support implantation. Coordination can be extremely difficult, especially when the donor and recipient are widely separated. The NCCRM often has donors in North Carolina and recipients out of state or even out of the country.

Involvement of our nurse in patient education before the procedure greatly facilitates obtaining truly informed consent. The nurse also provides the most direct emotional support to donors.

Treatment Protocols

Long-acting gonadotropin releasing hormone (GnRh) agonists inhibit the production of endogenous gonadotropins. Use of these agents makes cycle coordination possible. If the recipient woman has ovarian function, her pituitary is downregulated with GnRh agonists. The recipient's uterus is then prepared by administering estrogen and progesterone, and embryo transfer is done on the fourth day of progesterone administration.

After pituitary down-regulation with GnRh agonists, the donor woman is given menopausal gonadotropins to induce the development of multiple follicles and, at an appropriate time, she is given human chorionic gonadotropin (HCG) to induce oocyte maturation. The woman is sedated heavily and an average of 12 eggs are aspirated by trans-vaginal puncture under ultrasound guidance. The donated eggs are fertilized in vitro with sperm from the recipient's husband, and embryos are transferred to the wife's uterus 48 hours later. Any embryos not placed in the wife's uterus are frozen for later transfer. There is a high risk of multiple pregnancy in oocyte donation, but many couples see this as an opportunity to complete their family all at once.

Psychological Assessment and Support

Donors. Egg donors give many reasons for their willingness to donate eggs. Raoul-Duval et al interviewed anonymous, unpaid donors who had been brought into the donor IVF program by a friend or relative of a recipient couple. These donors were said to be acting altruistically. None showed any interest in money or emotional or material blackmail. One wonders if these donors were truly volunteers, since it must have been obvious to them how much the recipient couple depended on their participation. The recipient couples in this series were relatively serene, coped easily with the treatment regime, and bonded well to their babies.10

Sauer and Paulson described three years of experience with 50 donors who had been brought into the program by recipient couples directly. The donors said that concern for other's infertility was their prime motivation for donating. Donors tolerated well the discomfort of injections, side effects, and egg aspiration, and were willing to donate again. Those who underwent subsequent cycles found them less stressful because they were familiar with the drugs and their effects. There were no conflicts over maternity, and no difficulties in donorrecipient relationships subsequent to donation, pregnancy, or childbirth.11

Shover et al12 carried out a psychological follow-up of 23 women evaluated as egg donors. Ninety-one percent were satisfied with their experience and 74% said they would donate again if given the chance. Two donors experienced adverse psychological reactions, which responded to psychological or medical intervention. Sixty-four percent of donors in the sample had a history of mild depression, 36% had experienced sexual trauma, and 4% had major psychiatric disorder. A history of family stress and reproductive traumas was common. Twenty-seven percent of donors said they had given up childbearing because of their partner's wishes.

Shover et al assessed donors at six and 12 months and found the following positive aspects of donation: the opportu-

nity to help an infertile woman, interactions with the staff, being part of a new medical procedure, and financial compensation. Women who were not accepted by the program reported negative reactions. They felt rejected and saw themselves as psychologically fragile. 12

Bartlet found that 94% of donors chosen by the recipient couple had altruistic motives. She also found that one-third of the donors had had a previous voluntary abortion, and felt that egg donation would "make up for it." ¹³

Quigley et al reported that donors were more likely than matched controls to have become pregnant while unmarried and to have a partner who did not desire children. Donors had experienced more family turmoil, had an increased prevalence of previous sexual trauma, and were more likely than controls to have siblings with a history of drug use or major psychiatric disorder.¹⁴

Recipients. Raoul-Duval et al10 described the recipient couples enrolled in their anonymous egg donation program. The authors expected to find increased anxiety in recipient women due to the break in maternal lineage, but they did not observe this. The women planned to tell their children they were conceived by 1VF, but reference to egg donation seemed to be ignored. The authors call this a "white lie," and cite denial as the main cause of this maternal oversight. They report that recipients perceive their offspring as "immediately, fully, and permanently theirs," and state that "biology takes over from genetics; emotional ties are based on the privileged period of pregnancy." They also state that "denial is particularly strong in cases of oocyte donation."

At NCCRM we have found, through semi-structured interviews, that recipients give good reasons for preferring egg donation to adoption. Since they are in control of the uterine environment, they can guarantee a healthy diet, good prenatal care, abstention from alcohol and drugs, and thereby increase the chance of having a healthy baby. In addition, recipient couples feel good about having the husband's gametes reproduced and

feel connected to the child through the husband's sperm and the wife's pregnancy.

Couples often ask when and how to tell others, including the child, about the donation. We counsel them to consider the matter of disclosure carefully, to protect their privacy and personal comfort, and to tell the child the truth as part of his or her own unique story sometime before school age.

In her 1988 book, *Embryos*, *Ethics* and *Women's Rights*, Schuker¹⁵ cites several explanations of the psychological effects of the new reproductive technologies: 1) Parents and children generate fantasies about the technological interventions infertile couples use to achieve parenthood; 2) good parenting and effective nurturing of children does not require a biological connection, 3) but early psychological attachment is important for normal development; and 4) technology can relieve the psychological pain of infertility.

She finds that the "key factor in adequate parenting performance is the experience of being well-nurtured one-self." Schuker is clear that the way a child is formed is less important than the meaning assigned to the technological beginning and the adjustment to it that the parents make.

Ethical Considerations

Some feminists, religious groups, and ethicists find reason to object to the process of egg donation.

In her 1985 book, *The Mother Machine*, Corea¹⁶ cautions women about being used by male physicians as experimental subjects and being used by their husbands simply as receptacles for sperm rather than being valued for their other traits. She also argues that women should not be made to feel incomplete if they are childless. We feel that these scenarios, while possible, are infrequent. In our experience it is more common for the husband to be goaded almost reluctantly into parenthood because his wife is determined to have a baby. It is certainly possible to have pressure or coercion

from either side, but we do not see this as a valid argument to withhold the procedure from those who desire it and to whom it could extend the joys of parenthood.

Raymond states that "the focus on altruism sentimentalizes and thus obscures the way women are exploited by the reproductive technologies. This whole stagecraft of the reproductive gifts and gift-givers...fails to examine the institution of reproductive science." She continues "...this new reproductive altruism depends almost entirely on women as the givers of these reproductive gifts—women who have been tutored culturally

"Older parents can help their child deal with the issue of age by being honest and open about the timing of their parenthood...if parents are ashamed about their age or physical condition or the manner in which their child was conceived, then the child may incorporate a sense of shame and inadequacy."

and historically to put other's interests before their own...the altruistic pedestal on which women are placed by new reproductive technologies is one more way of glorifying women's inequality."¹⁷

Robertson⁸ discusses the pros and cons of volunteer versus paid donors. He concludes that egg donation entails greater risks than other activities for which people volunteer. He finds that fears of class bias and exploitation are not supported, and asserts that, although repugnant to some, payment is an appropriate way to recognize the contribution the donor makes. It would be discriminatory to pay sperm donors but not egg donors.

Other ethical considerations focus

on "tampering with nature," altering the gene pool and exploiting donors who, because they are "programmed to be giving as women in society," don't really know their own minds and can't be trusted to give informed consent. 18 We think these arguments are balanced by considering how young men have volunteered for dangerous military assignments throughout history. Altruism and volunteerism are parts of our human heritage.

Religious objections follow the lines of "tampering with God's will" and "playing God." The prohibition against adultery is sometimes cited, but since there is no sexual involvement in IVF, the argument seems weak. 19 There is, of course, Biblical reference to infertility resolved through divine intervention, the use of concubines, and leviratic marriage (the compulsory marriage of a widow by a brother of her deceased husband to produce an heir for the brother).

Parenting Issues

The issues of bonding to the child, of parenting after infertility, and of being an older parent are all part of the multifaceted picture of becoming a parent through egg donation. The most salient issue specific to the use of donor eggs is that of being an older mother. Yarrow says older mothers have "higher educational levels, higher status jobs, and higher incomes, on the average than do younger mothers."20 The child born to older parents has the advantage of parents who are settled, who know each other well, who are more financially secure, and who have time to invest in their children's activities. To be sure, there are disadvantages in having parents two generations removed. Parents' health and energy levels may not be sufficient for sports and other athletic activities so important to adolescents. Flexibility in rearing a young child may be needed at a time when older parents are "set in their ways."

Older parents can help their child deal with the issue of age by being honest and open about the timing of their parenthood. Clearly, if the parents are ashamed about their age or physical condition or the manner in which their child was conceived, then the child may incorporate a sense of shame and inadequacy.

Pregnancy Rates

In 1993, the American Fertility Society Registry reported a pregnancy rate of 31% per egg donation cycle.21 We completed 26 cycles of oocyte donation at NCCRM during 1993; 17 patients (65%) became pregnant and 13 patients (50%) delivered living infants. These rates are much higher than obtained with traditional IVF using the recipient's own eggs (during 1993, the pregnancy rate at NCCRM for traditional IVF using the patient's own eggs was 37%, about half that achieved using donor eggs). At NCCRM during 1993, our multiple pregnancy rate using donor eggs was 46%, all were twins except one set of triplets.

Commentary

For some couples, donor eggs are the only option available to create a family. Extensive experience with use of donor sperm suggests that couples adjust well to the fact that only half the genetic heritage of the child comes from the parents. Because the procedure, when successful, affects the entire life of the recipient couple, it is important that the physical and mental health of both donor and recipient couple be carefully evaluated, and that the donor be evaluated for the presence of genetically transmitted conditions.

Experience in the United States during the past several years has shown that older women, if they are healthy when they become pregnant, have only a modestly increased risk of complications of pregnancy. Indeed, a growing cohort of women in their late 40s or early 50s has used donor eggs to achieve successful pregnancy. One Swedish, populationbased study22 did find an increased risk of pre-term births and small-for-gestationalage babies born to women over 40. The same study reported a small increase in the incidence of late intrauterine deaths. Since these pregnancies were all spontaneously conceived, the effect of older eggs cannot be separated from the role played by older uteruses. At any rate, it is clearly possible to offer childbearing to women in their 40s or early 50s without undue maternal or fetal risk.

We want to emphasize that there are no long-term follow-up studies of donors, recipient couples, or the children. Such studies are urgently needed.

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Development of Sports Medicine

J. Wellington Adams, MS III

Sports prepared and honed the skills of early humans for hunting and protecting the family. From such modest beginnings, the range of sports has developed so that it now includes not only impromptu foot races but also the largest contest of them all, the Olympics. Of course, sports-related injuries have accompanied sports activity. The book of Genesis records the first of these: "And Jacob was left alone; and there wrestled a man with him until the breaking of the day. And when (the man) saw that he prevailed not against (Jacob), he touched the hollow of his thigh; and the hollow of Jacob's thigh was out of joint as he wrestled with him."

The discipline of caring for injured athletes grew slowly over 2,500 years, but recently it has experienced tremendous growth, in part due to an increase in the numbers of women, youth, and older participants and, in part, to society's new view that sports medicine physicians treat more than just college and professional athletes. In this paper, I review the evolution of sports medicine into a discipline.

Discipline of Sports Medicine

The term "sports medicine" means different things to different people. A strict definition is complicated by the use of historical designations instead of logically developed ones.² Dr. David R. Lamb, past president of The American College of Sports Medicine gives one of the most comprehensive definitions: "...the scientific and medical aspects of exercise and athletics. Moreover, sports medicine is the study of physiological, biochemical, psychosocial, and pathological phenomena associated with exercise and athletics and the clinical application of the knowledge gained...to the improvement and maintenance of functional capacities or physical labor, exercise, and athletics and to the prevention and treatment of disease and injuries related to exercise and athletics."³

Greek Period

Before Hippocrates, medicine consisted of magic and myth. Disease was "the will of the gods" and therapeutic measures consisted of offerings to these gods. Medicine was the province of priests and magi who prayed to Aesculapius, the Greek god of medicine. Aesculapius had been killed by a thunderbolt from Zeus because he revived a person from the dead and thereby upset the balance of nature. Before his death he passed his medical knowledge on to his children: Podalerius, the father of medicine; Machaon, the father of surgery; Panacea, the goddess of healing; and Hygeia, the goddess of good health.

Eventually the disciples of Aesculapius began treating patients apart from the temples and the priests. They based their medical procedures on tradition and practical experience and even developed theories of natural

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causes of diseases.⁴ Hippocrates, who considered himself a direct descendant of Aesculapius, furthered the knowledge of the disciples by organizing and enriching their information. Under the influence of Hippocrates, athletic injuries and diseases were no longer seen as the punishment of the gods.⁴

During the time of Hippocrates, physical education and athletic contests became very popular. Beginning in 776 BC, contests were held every four years at Mount Olympus to honor Zeus. Winners of these games were honored like professional athletes of our day.1 To compete in the Olympics, prospective athletes underwent 10 months of intense training during the year of the Olympiad, usually in a gymnasium near the athlete's home. Training was supervised by a gymnastes, a physician interested in all phases of training; a paidatribe, a masseur; and an aleiptes, a bath servant who anointed the athletes.² Also involved was a trainer, who served as an expert on diet, massage, physical therapy, and hygiene as well as the techniques of boxing, wrestling, and other sports. By the 5th century BC, trainers had formed guilds with membership requirements and became so powerful (and professionally jealous) that they prevented physicians from training athletes or caring for them, except to treat injuries.

Around 444 BC, Icus of Tarentum wrote the first textbook for trainers (since lost) and his practices were carried out for the next 700 years. Milo of Croton, one of the most famous trainers, gave us the first recorded progressive resistance exercise. He recommended lifting a bull on the day it was born and continuing this daily until it was full grown! Accompanying the rise of athletic training, the diet of athletes was modified and became more balanced. Meals consisted of mead, oxymel, purgatives, asses' milk, and extracts of celery and onion. Also recommended were music and meditation, but not in excess.

The Greeks, following Hippocrates, raised sports medicine to a high level. They knew how to reduce dislocations, remove foreign bodies, clean wounds, cauterize blood vessels, apply compresses, and construct some medical equipment. For pain, they prescribed mandragora and poppy. Athletic performance reached a superior level because athletes were well conditioned and well prepared.⁴

Roman Period

Claudius Galen of Pergamum is one of the most famous physicians of antiquity. In his early years, the Pontifex Maximus appointed him physician to the gladiators in Pergamum, the capital of Asia Minor. Galen thus became the first team physician on record, serving in this capacity from 151-168 AD. He grew knowledgeable about sports injuries and their treatment. When Galen was later called to Rome as physician to the emperor Marcus Aurelius, he was put in charge of the education of the Emperor's son, Commodus. Commodus, as emperor, participated in the arena and was a noted gladiator. Galen served the emperors until he retired to Sicily where he died around 200 AD.

Galen had a part in the gladiator games, but he did not favor them. He says, in his *Paraphase of Mendotus*, "athletes live a life quite contrary to the precepts of hygiene, and I regard their mode of living as a regimen far more favorable to illness than to health. They lose their eyes and their teeth, and their limbs are strained...[W]hile athletes are following their professions, their body remains in a dangerous condition, but when they give up their profession they fall into a condition more parlous still; as a fact, some die shortly afterwards; others live for some little time but do not arrive at old age."²

From his work in the arena, Galen established and published many facts about exercise physiology. He discovered that muscles had only one action, contraction, and only one direction of action. He reported the antagonistic actions of muscle groups and postulated that the brain provided the stimulus for muscle contraction. He developed the idea of muscle tone, described the anatomy of the arteries and veins, and described the formation of urine.² The works of Galen consist of approximately 2.5 million words on grammar, law, math, and philosophy, in addition to his medical works.¹

The Roman physician Aureliamus advocated the use of medical rehabilitation using hydrotherapy and weights on pulleys. He also advocated exercise after surgery. Still another, Paulas Aegineta, favored exercise but wanted it be a violent motion that would cause organs to be fit for functional activity.²

After the Roman Empire fell, the medieval church adopted Galen's works and they were exclusively followed. Other advances in knowledge gained during and before the Roman Period were preserved by the Byzantine and Islamic cultures.¹

Muslim Physicians

Around the 10th century, Muslim physicians started translating the works of Greek and Roman physicians and adding their own observations. The Persian physician, Abu Ali-Husain ibn' Abdallah ibn Sina (known as Avicenna in the West), was one of the most famous. By the age of 18, he was considered a great physician, but his interests were broad and his works, most of which were compilations and simplifications of earlier writings, covered geology, medicine, religion, philosophy, and astronomy. His *Canon of Medicine*, the most important medical work of its time, gave an overview of the ideas of Hippocrates and Galen with commentary by Avicenna. It became the medical standard of the Islamic and Christian world from the 12th to the 17th century and contains information on sports medicine.

In his chapter on "The Preservation of Health," Avicenna gives his regimen for the physically mature. He begins with a presentation on exercise and its benefits (he postulates that toxic wastes accumulate in the human body and that exercise gets rid of them). Avicenna lists exercises ranging from the gentle (swinging) to the vigorous (wrestling) and prescribes regimens specifying alternate vigorous and mild exercise, the time of day for exercise, and the relationship to nutrition. He prescribes exercise for treating voice, hearing, and vision

problems, and promotes the use of medical gymnastics, massage, warm baths, and contrast baths in the rehabilitation of injuries. Avicenna died in 1037 of an acute attack of colic which, unfortunately, he treated himself.⁶

Renaissance

Italy. The 15th century saw the emergence of physical education. Vittorino da Feltre founded a school for children at the royal court in Mantua. He integrated daily sports and physical exercise into the educational scheme for each child according to the child's ability, the season, the weather, and time of day. His program continues to have an impact on the educational system of the western world.

In 1569, Gerolama Mercuriale published the Artis Gymnasticae Opund Ontiguous Celeberrimae, Nostris Temporibus Ignoratae which promoted his belief in regular and varied exercise for the health of the general population. This first illustrated book on how medicine, sports, and exercise helped to gain and preserve health was so popular that it went through six editions. Mercuriale classified exercise as either

preventive or therapeutic and warned against strenuous military exercises. He, too, sought to show the importance of physical education to education in general. He wanted a harmonic balance of education for the mind and training for the body and disavowed the promotion of a healthy body at the expense of an educated mind.⁷

"(Mercuriale) wanted a harmonic balance of education for the mind and training for the body and disavowed the promotion of a healthy body at the expense of an educated mind."

France. Laurent Joubert introduced therapeutic exercise into the medical school curriculum at Montpelier because he felt that only physicians could prescribe exercise correctly. Ambroise Paré, leading surgeon of the 16th century, proposed the use of exercise for the healing of fractures. In his Surgery he reaffirmed the ideas of Galen, and stated that the body needs exercise to maintain its health.

Joseph Duchesne was the first to propose swimming to strengthen the body. He wrote, in *Ars Medica Hermetica*, "The essential purpose of the gymnastics for the body is its deliverance from superfluous humors, the regulation of digestion, the strengthening of the heart and the joints, the opening of the pores of the skin, and the stronger circulation of blood in the lungs by strenuous breathing.²

Spain. Christobal Mendez of Jaen wrote the first book on exercise, the Libro del Exercicio Corporal, published in Seville in 1553. It preceded Mercuriale by 16 years. Mendez stressed the importance of exercise for illness prevention and health preservation. He talked of fever as a cause of bodily damage, but thought that exercise caused a good form of bodily heat. Mendez commented on nature's participation in healing, the

use of diets, moderation in all things, and use of exercise. The book is unique because it consists of Mendez' own observations, not the compilation of others' opinions. Only three copies of his book survive, one at Yale and two in the Biblioteca Nacional in Madrid.⁶

17th and 18th Centuries

Bernardino Ramazzini, the "father" of occupational medicine, began publishing articles on workers' health in 1685. In 1700, his papers were compiled into the first recorded textbook of industrial medicine, *De Morbis Artificum* (Disease of Workers). Two chapters are of importance to sports medicine. In his chapter on "Diseases of runners," Ramazzini alludes to couriers and footmen: "Most of them suffer from hernia and from asthma, an ailment that we very often observe in racehorses; often they become subject to spitting blood." Ramazzini obviously recognized exercise-induced asthma, and also observed that runners "often incur acute and scrious diseases of the chest (pneumonia and pleurisy) because they are exposed to wind and rain in garments that furnish little protection; they are drenched

in sweat, then chilled through, and thus the pores of the skin are stopped up, so that they cannot but be attacked by fatal diseases, especially of the respiratory organs which in running work hardest and become overheated."8 He explained the hematuria of runners: "Sometimes they burst a small vein in the kidneys and pass bloody urine." He proposed that running

benefits the joints: "[They] are indeed strengthened by movement and running, just as they are weakened and become sluggish from idleness and leaving off exercise." He also said that runners are commonly afflicted with diseases of the head and cites Aristotle for this.

On his chapter on "Diseases of Athletes," Ramazzini warned: "It is more dangerous to change from idleness to work." We can only speculate whether he was thinking about acute cardiac disorders in unfit people who begin strenuous physical activities. He contradicted the trainers who believed that sexual intercourse should be avoided prior to competition: "Coition should not be too much desired or feared too much; when infrequent it stimulates the body, when frequent it makes a man soft."

19th Century United States

Sports medicine in the US began with Edward Hitchcock, MD. In 1854 he became the first physical education and hygiene instructor at Amherst College. His system of physical education, based on the European model, included gymnastics, run-

ning, baseball, and basketball. As school physician he recorded the incidence of disease and injury at the college. He published one textbook and 161 articles on medicine and athletics including, "Athletics in American Colleges," "Basketball for Women," and "What the College May Do to Prevent Insanity." He is considered the father of American physical education, first sports medicine physician, and first team physician.¹

In 1898, J.B. Byles and Samuel Osborn published *The Encyclopedia of Sports*. A section on sports medicine described practical emergency treatment of hemorrhages, wounds, bites, bruises, fractures, dislocations, strains, head injuries, and the transportation of the injured. They described the common injuries of angling, boxing, cricket, cycling, football, hunting, lawn tennis, mountaineering, rowing, shooting, and prescribed treatment.² In 1899, E.A. Darling of Harvard published *The Effects of Training*, a study of the Harvard crews that stimulated modern studies into the effects of training.³

20th Century

In 1905, the US government considered abolishing football because of its high injury and fatality rate. Dr. Edward Nichols wrote an article on football injuries. Four years later, the rules had been changed, and he published another article which concluded that the new rules lowered the injury and mortality rate. Football survived.¹

In preparation for the 1928 winter Olympics in St. Moritz, European physicians held a congress on sports medicine. At the 1928 summer games in Amsterdam, an international sports congress was convened, out of which developed the Federation Internationale of Medicine in Sports (FIMS). The Federation exists today as the international organization for sports medicine physicians. It holds meetings before the winter and summer Olympic Games and publishes *The Journal of Sports Medicine and Physical Fitness*. The Federation has stimulated the development of more than 75 national sports medicine federations throughout the world.³

Dr. Mal Stevens was unique in sports medicine training. As an undergraduate at Yale, he played football and served on the coaching staff at the same time. While at Yale Medical School, he was named head football coach, a position he kept during his residency and fellowship at New Haven Hospital. He served as president of the American College Football Coaches Association in 1932 and was chairman of the committee on football injuries. In 1933, he co-authored *The Control of Football Injuries* which suggested pneumatic padding for football helmets. In 1934, he became head football coach at New York University and was appointed to the staff of the Ruptured and Crippled Hospital. Later, he was named director of the Sister Kenny Foundation and physician of the New York Yankees.¹

Dr. Thomas B. Quigley, for more than 30 years team physician to Harvard athletes, was nicknamed "Doctor of Football." In the 1940s he wrote the "Athlete's Bill of Rights," which listed the requirements of good athletic medical care and

gave the rights of the athlete priority over any other considerations.¹

In 1954, the American College of Sports Medicine (ACSM) was founded as the American counterpart of the FIMS. Its official journal, *Medicine and Science in Sports and Exercise*, began publication in 1969. The ACSM is probably the largest single sports medicine organization. Its members include physicians, exercise scientists, fitness counselors, and other sports medicine related personnel from North America and elsewhere. The ACSM sponsors a three-part Team Physician Course that is now in its fifth year.³

Several other American professional sports medicine organizations have been developed. They include the National Athletic Trainers Association, founded in the early 1950s; the AMA Committee on the Medical Aspects of Sports, organized in 1960; the American Orthopaedic Society for Sports Medicine, (AOSSM) begun in 1972; and the American Medical Society for Sports Medicine, (AMSSM) founded in 1991 specifically to serve as the "voice" of clinical primary care sports medicine physicians (family practice, emergency medicine, internal medicine, and pediatrics).

Educational Programs

Currently, no American medical schools require sports medicine courses, but many do offer elective courses. There are many sports medicine fellowships in the US, all of which require that physicians first complete a residency program. Most are one-year fellowships based in orthopaedics, but an increasing number involve family or emergency medicine.11 The fellowship conducted at the American Sports Medicine Institute (ASMI) in Birmingham, Alabama, is typical. Eight positions are offered annually for an orthopaedic sports medicine fellowship and three for a general sports medicine fellowship. In addition to increasing their clinical skills, fellows participate in biomechanical, clinical, and applied research, and writing projects. Each fellow is assigned to a high school and college and visits the training room at least once a week. General sports medicine fellows are family practitioners, internists, pediatricians, and other physicians who concentrate on medical aspects of sports and on working with athletes and teams involved in recreational and organized sports.¹³

Personnel

A vast number of professionals besides sports medicine fellows and orthopaedic surgeons are involved in the field of sports medicine.³ The special knowledge and skills of cardiologists, physical medicine specialists, neurologists, gynecologists, ophthalmologists, osteopaths, and podiatrists are called upon as needed. The last US Olympic team even included a chiropractor as a member of the sports medicine delegation. Other personnel include athletic trainers who provide training and conditioning

and rehabilitation programs, physical therapists, occupational therapists, exercise physiologists, and kinesiologists.³

Conclusion

The field of sports medicine exists only because of the pioneers who went before. Without the contributions of famous physicians, such as Galen, and of relative unknowns, such as Mendez, the field of sports medicine itself would be poorer today. I hope that this article will honor those pioneers in sports medicine and educate us about its storied history.

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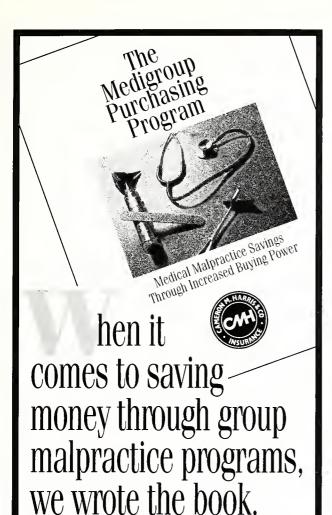
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Family Business

Edward C. Halperin, MD

I took last Wednesday off from work. I usually don't take sporadic days off. It's not my habit.

"Where are you going?" my secretary inquired.

"Family business," I answered. "Family business."

I am approaching what the pundits call "one of life's stages." My stage, at the moment, is called "caring for aged inlaws." You read about it in all the magazines nowadays. It's a role reversal, having to take care of your parents.

The winter was particularly rough in the Northeast, with one snowstorm following on the heels of another. My in-laws, who live in Connecticut, had been having a rough time of it. When you combine the weather with a variety of multiple medical problems, you begin to think it is time to head to safer and warmer climes. It was also difficult for my wife, an only child, to coordinate things long distance. I guess we are, in that sense, victims of the mobile society. Nobody lives very close to their parents any more. The vicissitudes of life, which used to be attended by close-knit and close-living extended families, now need to be solved by some other means.

So, on my Wednesday off, my wife and I loaded the children into the car and headed off to visit an "old age home." I guess that's a good name for it. I know there are a bunch of pleasant, highfalutin' euphemisms—"residential communities for active seniors" or "community for mature adults." Our destination, on Wednesday, was the central part of the state. After a long drive, we found ourselves at the entry of the old age home. The grounds were manicured and the buildings, from the outside, were stately. They gave the impression of order and structure. We had made an appointment and were met, in the well-appointed lobby, by a social worker.

The social worker was polished at this sort of thing. My wife and I were asked about my in-laws' current residence, state of health, and finances. I recalled a little bit about the finances of elder care from when I was a child. I remember my father commenting on the enormous cost of nursing home care for my grandparents in the 1960s. Things aren't any cheaper in the

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1990s. We were quoted prices, for room and board, of about \$1,800 per month for one person, and \$2,500 per month for a couple.

Then it was time for the tour. You could have eaten off the floors. Everything was spic and span. If you are "functional," you get a 15-by-15-foot room with a bathroom, and three meals per day in the dining room. The day is otherwise filled with arts and crafts, music, field trips, and any other activity that the staff can muster. I learned that the definition of "functional" is that you can walk from your room to the dining hall and make it back.

The old age home was ready for about anything. Senior citizens who became less "functional" would move into a more intensive nursing unit where they would be cared for, fed, and given medications. Our tour guide asked if we wanted to see the "vegetative" area. I gathered, from the look on her face, that many people said no. I opted to press on.

The "vegetative area" housed mothers and fathers, husbands and wives, grandmothers and grandfathers. Most sat in "geriatric chairs." I have seen them around the hospital; I just never heard them called "geriatric chairs." They are large, high-backed affairs that can be cranked up and down to aid the caregiver in providing bodily care to an individual. When I visited, about 15 residents were arrayed around a large table, being encouraged to push a large, soft ball back and forth for exercise. Some of the elderly residents were paying attention; others were babbling to themselves. The room was bright and clean enough, but it was all rather sad.

As I was walking around, my thoughts turned to a patient of mine from years past. She was an elegant, articulate woman whose husband had developed Alzheimer's disease. As he was losing his memory, he was swindled out of a considerable amount of money by a financial flim-flam man. My patient developed metastatic breast cancer. Short on financial resources, and dying of cancer, she moved to a nursing home in Durham. One of my colleagues paid a house call on her and told me that she lay in her small room, looking about, and saying, "Is this what it all comes down to? You live your whole life and end up dying in a small room, alone, in a nursing home?"

Few of us like to admit our mortality. We probably all pray

that we retain our ability to think and move to the end our life and then dic, peacefully and painlessly, in our sleep, with our financial affairs in order for our descendants. We don't plan on sitting in a geriatric chair, among a bunch of strangers, encouraged to push a soft ball around on the table by a recreational therapist 60 years our junior. As physicians, we work hard to preserve both the quality and quantity of life. I don't know whether life on the "vegetative unit" is of good, bad, or indifferent quality. I also don't know who is entitled to judge.

I re-learned a lesson I already knew on my day off: you are better off with your family. It is no great revelation. We pay a severe price for our societal mobility. We get farther and farther away from our families, not only geographically, but personally. The nursing home industry is growing because the population is aging. We demand technical care for our older family members; we cannot or will not do it ourselves—so we pay others to do it.

My patient's plaintive cry, years ago, of "Is this what is all comes down to?" can serve as a challenge. If we want to make sure that the last years of our lives are not reduced to a clean room, removed from loved ones, attended to by strangers, then the answer really is "family business."

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Climericks

Venous Thromboembolism: Risk Factors

DVT is a tough diagnosis.
Without pain you can get thigh thrombosis.
The rule Homans taught,
Isn't worth squat,
You'd better know what predisposes.

If you lay around watching TV, You may be at risk for PE. A process mitotic, May make you thrombotic, And so can a low Protein C.

Birth control pills may be of use, If you're not ready for a papoose. But they may cause you pains, From the clots in your veins, Which can suddenly form and break loose.

Pregnancy isn't the answer.
It may cause clots just like cancer.
The postpartum state,
Is usually great,
But it's also a blood clot enhancer.

A patient we had was named Peter. He had cancer of the ureter. He took a long trip, And fractured his hip, He was obese 'cause he was a big eater.

Two days after surgery passed, When poor Peter's breathing got fast. His pressure got worse, And there is no next verse, The next breath that he took was his last.

The moral is simple to see.
Keep your risks to as few as can be.
Slim down your guts,
And stay off of your butts,
And use prophylaxis for DVT!

Dr. Tapson presented "Venous Thromboembolism" during a lecture at Duke Medical Center in 1992. "Fat Embolism" won a contest sponsored by Internal Medicine News & Cardiology News, which published it in October 1993. Dr. Tapson is Assistant Professor of Medicine, Div. of Pulmonary and Critical Care Medicine, Box 31175, DUMC, Durham 27710.

Clinical limericks by Victor F. Tapson, MD

Fat Embolism

There once was a German named Klaus, Who fell from the roof of his house. He hit with a groan, And broke his thigh bone, When he landed on top of his spouse.

Well, they yanked and they pushed until nine, To get his leg bones in a line. Some fat gained access To his blood from this stress. His condition began to decline.

Von Bergman stood by...he was *thrilled*. "It's just like the cats that I killed!²
The next thing you know
His O₂ will be low...
I hope that his intern is skilled."

Indeed, Klaus got the big three, Starting with lung injury. Plus a rash on his skin, And then confusion, Von Bergman screamed, "Fette Embolie!"

An x-ray was ordered, post haste, As the fat was chewed on by lipase. Fatty acids were sprung, And got loose in the lung, Destroying alveolar space.

Klaus was tachypneic and sweaty.
Von Bergman was throwing confetti.
The intern said, "I...
Could give steroids a try,
But they aren't yet reported by Petty."

Petty was then only three. So he didn't, yet, have his MD. But he was a smart tot, And he said, "This man's bought... Intubation and then IMV."

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Continuing Medical Education in North Carolina

Emerging Trends and New Challenges

William E. Easterling, Jr., MD, Susan Gustke, MD, James C. Leist, EdD, and Thomas E. Sibert, MD

Berryhill and colleagues said: "The first recorded institutional venture into the field of Continuing Education was recorded in 1916 when the University of North Carolina inaugurated two circuit courses, one in the eastern part of the state, and one in the western part, designed to carry continuing education to physicians in their communities. This program, believed to be the first such statewide effort in the country, provided for the needs of the physicians of the state for postgraduate courses and answered the problems of time and expense involved in traveling to distant medical centers for such courses."

The practice of good medicine requires an uninterrupted incorporation of advances of scientific understanding. In addition, health care reform challenges today's physicians to focus

on cost-effective outcomes and to adjust their careers toward primary care and managed care. In such circumstances, continuing medical education (CME) plays an ever more pivotal role in the education of physicians. It is therefore timely for us to reexamine the role and effectiveness of CME in North Carolina. Over the years, educational activities have become established traditions that accommodate the needs of practicing physicians. One of the purposes of this paper is to inform the physicians of North Carolina of recent developments within the University/AHEC organization and on the national scene.

NC Medical Schools and the AHECs



The North Carolina Area Health Education Centers (AHEC) program, established in 1972, significantly improved earlier CME activities. The AHECs created a highly effective apparatus for bringing educational experiences to physicians and other health care professionals in local communities. Category 1 credit toward the AMA's Physician Recognition Award (PRA) was made available through accredited CME programs at the Bowman Gray School of Medicine of Wake Forest University, Duke University Medical Center, East Carolina University School of Medicine, and University of North Carolina at Chapel Hill School of Medicine.

There are nine AHECs in North Carolina, each related to one of the four medical schools (see map): Bowman Gray serves the Northwest

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AHEC; Duke, the Fayetteville AHEC; ECU, the Eastern AHEC; and UNC, the Mountain, Charlotte, Greensboro, Wake, Area L, and Coastal AHECs. Although the CME programs at each AHEC are a component of the respective medical school, they are structured differently. The CME staff for the Northwest and Eastern AHECs are located on the medical school eampus, and those of the Fayetteville and the six UNC AHECs are located in decentralized offices at the AHEC site.

For four years, the associate deans for Continuing Education at the four medical schools have met regularly and for the past three years they have also met with the CME staffs of the nine AHECs. This has fostered an extraordinary level of cooperation, planning, development of common policies and procedures, and exploration of our marvelous "AHEC-CME laboratory" for research projects in adult education. One of the most important results of this partnership is an increased assurance of CME quality for the physicians of North Carolina.

Quality CME Through Collaboration

CME has had a clear impact on the quality of eare rendered to people in this country.² This success has heightened concern that CME maintain high standards and, as is the case with all

health care quality assurance and educational activities, this has resulted in a proliferation of standards and guidelines that must be met by CME sponsors. The AHEC/medical schools partnership provides a mechanism for implementing these new rules and regulations with minimal, but important, changes in how we "do business." For example, commer-

cial support for CME used to be rather loosely regulated, but organizations like the US Congress, the FDA, and the Accreditation Council for Continuing Medical Education (ACCME) have mandated that support must be provided through the accredited sponsor. The change has been supported by reputable pharmaceutical companies and other health care industries. In fact, Marion Merrell Dow, Inc., recently made a two-year pilot grant to the four schools in support of a community CME project called "CME Carolina." Perhaps equally important is the opportunity that the AHEC/medical schools CME partnership provides to share ideas, coordinate and co-sponsor programs, and avoid conflict and duplication.

Essentials of Effective CME

ACCME,³ the accrediting body for most CME in this country, defines seven "essentials" to which CME sponsors strictly adhere. Essential 1 requires a mission statement that accurately

reflects the goals, scope, characteristics of the potential participants, and a description of the general types of activities and services provided by the organization. Essentials 2, 3, and 4 speak to the systematic planning of CME activities, courses, workshops, etc. Plans begin by identifying a target audience to which the activity will be directed and by identifying the needs of that group (for example, improvement of knowledge or skills identified by survey of the group, by quality assurance committees, etc.). Precise objectives are developed to meet the defined needs, and an appropriate format is designed (such as a handson workshop to teach new manual skills or a seminar to impart new information).

Essential 5 requires that the administrative/educational units responsible for CME programs evaluate themselves and all of their activities every two years to be certain that their mission is being accomplished. It also stipulates that each CME activity be evaluated by the participants. Essential 6 ensures the administrative resources necessary for an effective CME program. Essential 7 outlines the requirements for joint sponsorship by an accredited organization and a nonaccredited organization. The accredited sponsor is responsible for the entire activity and must be integrally involved in all educational aspects (usually by having a member of the full-time faculty be a part of the planning group). Recently the ACCME has

monitored jointly sponsored activities because local organizations find it difficult to give up some of the autonomy they have enjoyed in the past. However, since all parties want the best in CME, these new rules will soon become just a different way of organizing an event.

Beyond the new CME partnership in North Carolina and the "Essentials frame-

work," by far the most rewarding and exciting recent change in CME has been the AMA's adoption of an alternative PRA Certificate with "Special Commendation for Self-Directed Learning." This elevates self-directed Category 2 learning to the same level of importance as Category 1 and means that Category 2 CME activities have achieved the "gold standard" given to Category 1 in 1968. The certificate requires like numbers of hours in each category for the PRA; it recognizes that physicians get most of their learning from Category 2 educational experiences techniques and that these are not "second class." CME educators have for years claimed self-directed techniques to be "first class," and the best indication that learning will lead to change in practice.

The NC Medical Society, progressive as always, has adopted the new PRA certificate with "Special Commendation for Self-Directed Learning" and still accepts (as does the AMA) the standard PRA certificate. The Division of Continuing Medical Education of the AMA or any of the medical school CME deans in North Carolina can provide details.

"Our programs remain on the cutting edge of new learning methods and use advances in communication, such as the North Carolina Information Highway, to access seemingly endless library resources."

Conclusion

The uncertainties of health care reform and the rapid spread of managed care create new challenges and options. The physicians of North Carolina can be proud that the foundations for continued excellence in CME are firmly in place. Our programs remain on the cutting edge of new learning methods and use advances in communication, such as the North Carolina Information Highway, to access seemingly endless library resources. Still we maintain the fellowship of practicing physicians through the use of medical school faculty and local physicians as instructors, and our own southern educational hospitality.

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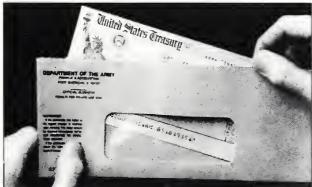
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Continuing Medical Education

October 7

6th Annual Clinical Cancer Conference:

Curative Therapy for Hematological Malignancies

Place: The Friday Center, UNC-Chapel Hill Credit: 7 hours Category 1, AMA; 6.5 hours AAFP

Fee: \$100

Info: UNC-CH Office of CME, CB# 7000, 231 MacNider

Bldg., Chapel Hill, NC 27599-7000, 919/962-2118,

fax: 919/962-1664

October 15

1st Annual Fall Symposium on Atherosclerosis Prevention

Place: Blowing Rock

Credit: 5.5 hours Category 1, AMA

Info: Bowman Gray Div. of CME, 910/716-4450,

or Physician Access Line (PAL) 800/277-7654

October 15

TB Conference

Place: Winston-Salem

Credit: 6 hours Category 1, AMA

Info: Bowman Gray Div. of CME, 910/716-4450,

or Physician Access Line (PAL) 800/277-7654

October 19-20

Comprehensive Management of HIV Disease:

A Clinical Tutorial for Physicians

Place: UNC School of Medicine,

UNC Hospitals, Chapel Hill

Credit: 14 hours Category 1, AMA

Fee: \$75

Info: UNC-CH Office of CME, CB# 7000, 231 MacNider

Bldg., Chapel Hill, NC 27599-7000, 919/962-2118

fax: 919/962-1664

October 20-22

Recent Developments in Internal Medicine

Place: Sheraton Atlantic Beach Resort, Atlantic Beach

Credit: up to 17 hours Category 1, AMA Info: ECU Office of CME, 919/816-5208

October 22-23

Advanced Cardiac Life Support Course

Place: Berryhill Hall, UNC School of Medicine, Chapel Hill

Credit: 15.5 hours Category 1, AMA

Fee: \$200 (phys.), \$150 (nurses, other health care staff)
Info: UNC-CH Office of CME, CB# 7000, 231 MacNider

Bldg., Chapel Hill, NC 27599-7000, 919/962-2118

November 2

Leo Jenkins Cancer Center Symposium: Colon Cancer

Place: Ramada Inn, Greenville

Info: ECU Office of CME, 919/816-5208 (credit: TBA)

November 3

Risk Management in Managed Care

Place: Winston-Salem

Credit: 2 hours Category 1, AMA

Info: Bowman Gray Div. of CME, 910/716-4450,

or Physician Access Line (PAL) 800/277-7654

November 4-5

2nd Annual Minority Health Symposium

Place: Sheraton Imperial Hotel, Research Triangle Park
Credit: 10 hours Category I, AMA; 10 hours AAPA
Fee: \$50 (NCAPA fellow), \$55 (NCAPA affiliate), \$60

(non-member), \$30 (student)

Info: James H. Carter, Jr., PA-C, NCAPA, 3 Mattie Court,

Durham, NC 27704-1551, 919/684-2937

November 5

Clinical Management of Multiple Sclerosis

Place: Winston-Salem

Credit: 6 hours Category 1, AMA

Info: Bowman Gray Div. of CME, 910/716-4450,

or Physician Access Line (PAL) 800/277-7654

January 5-6, 1995

ACLS Retraining Course

Place: Rex Hospital, Raleigh

Credit: 8 hours, AAFP

Fee: \$75

Info: Iris Ahlheit, RN, Rex Hospital, 4420 Lake Boone

Trail, Raleigh, NC 27607, 919/783-3161

February 27-March 2, 1995

Alton D. Brashear Postgraduate Course

in Head and Neck Anatomy

Place: Virginia Commonwealth University,

School of Medicine, Richmond, VA

Credit: 44 hours Category 1, AMA

Fee: \$400 (physicians), \$250 (residents)

Info: Hugo R. Seibel, MD, Dept. of Anatomy,

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Aphorisms of the Month

Daniel J. Sexton, MD, Editor

"Wisdom"

A wise man admits he knows nothing. -Proverb It is better to have wisdom without learning than to have learning without wisdom. Knowing what is right does not make a sagacious man. To wisdom belongs the intellectual appreciation of cternal things: to knowledge, the rational knowledge of temporal things. —St. Augustine It may be a mistake to mix different wines, but old and new wisdom mix admirably. —Bertolt Brecht The function of wisdom is to discriminate between good and evil. -Cicero There is a difference between happiness and wisdom: He who thinks himself the happiest man really is so, but he who thinks himself the wisest is generally the greatest fool. -Charles Caleb Colton Wise men are not wise at all times. -Proverb The road to wisdom? Well it's plain and simple to express. Err, and err and err again, but less and less and less. —Piet Hein It is the province of knowledge to speak, and it is the privilege of wisdom to listen. -Oliver Wendell Holmes Wisdom consists not so much in knowing what to do in the ultimate as in knowing what to do next. -Herbert Hoover A wise man, to accomplish his good may even carry his foe on his shoulder. —Panchatantra It is easier to be wise on the behalf of others than to be

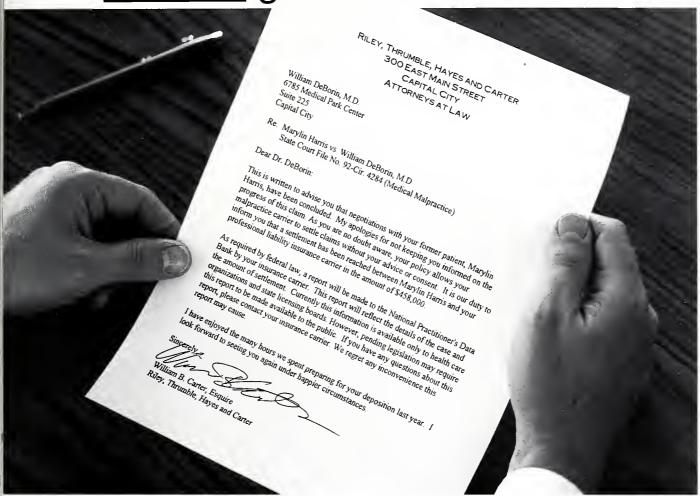
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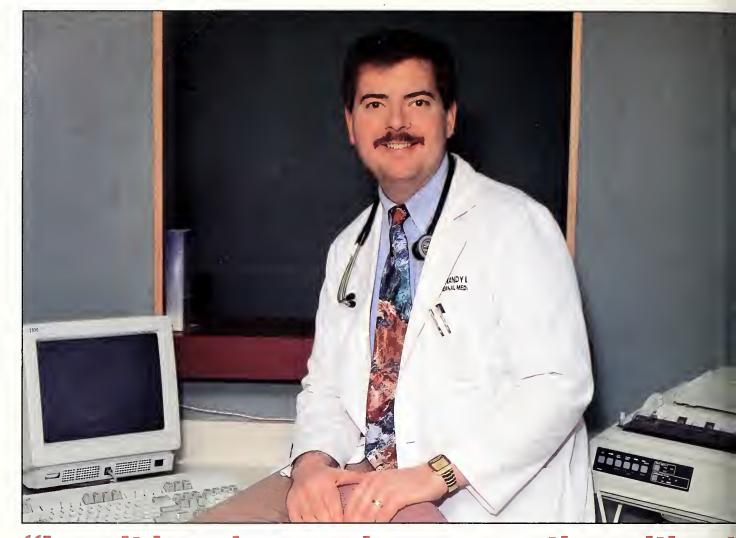
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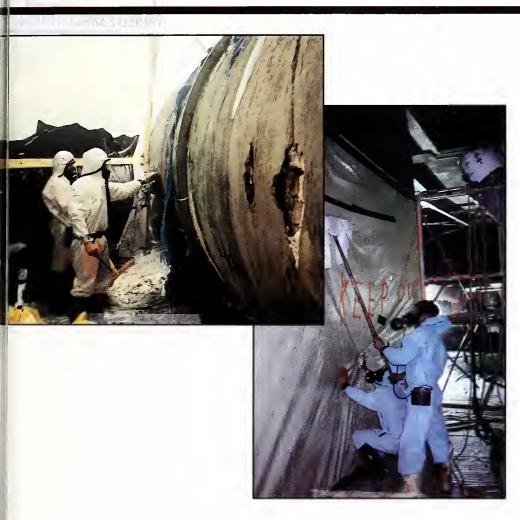
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North Carolina Medical Journal

For Doctors and their Patients



Mandatory
Reporting of
Occupational
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Problems

North Carolina's New Surveillance Program

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A Look at Hypertension in NC

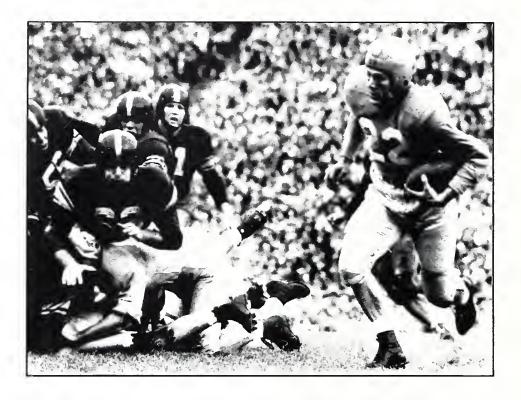
Cystitis Glandularis: Transition to Adenocarcinoma of the Urinary Bladder

How to Fill Out the Amended NC Death Certificate

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Yohimbine exerts a stimulating action on the mood and may increase anxiety. Such actions have not been adequately studied or related to dosage although they appear to require high doses of the drug. Yohimbine has a mild anti-diuretic action, probably via stimulation of hypothalmic centers and release of posterior pituitary hormone.

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References:

- 1. A. Morales et al., New England Journal of Medicine: 1221. November 12, 1981.
- 2. Goodman, Gilman The Pharmacological basis of Therapeutics 6th ed., p. 176-188. McMillan December Rev. 1/85.
- 3. Weekly Urological Clinical letter, 27:2, July 4, 1983.
- 4. A. Morales et al., The Journal of Urology 128: 45-47, 1982.

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NORTH CAROLINA MEDICAL JOURNAL

For Doctors and their Patients

November 1994, Volume 55, Number 11 Published Monthly as the Official Organ of the North Carolina Medical Society (ISSN 0029-2559)



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North Carolina Medical Journal

FOR DOCTORS AND THEIR PATIENTS

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Letters to the Editor



Treating HIV Infection: A Question of Ethics

To the Editor:

In 1989, I wrote a review of HIV infection, which was published in the *North Carolina Medical Journal* (NC Med J 1989;50:151-4). In the article I made a plea for more primary care involvement in both the outpatient and inpatient arenas of HIV infection.

More than five years later, Drs. Keitz and Bartlett have presented, in a much more forceful and compelling way, a similar plea, this time emphasizing the ethical grounds for such primary care involvement (NC Med J 1994;55:468-70).

Five years hence, let us hope that all health care providers will be more comfortable and willing to help in the fight to treat the complications of this devastating infectious disease. All North Carolina physicians should now actively become involved in HIV care provision; as Drs. Keitz and Bartlett point out so well, there are few (if any) valid reasons not to do so.

P. Samuel Pegram, MD
Professor of Medicine
Section on Infectious Diseases
and Immunology
Bowman Gray School of Medicine
Medical Center Boulevard
Winston-Salem, NC 27157-1042

To the Editor:

Drs. Keitz and Bartlett, who wrote "Facing the Challenge of HIV: Primary Care Physicians Have an Obligation to Care for Those Infected" (NC Med J 1994;55:468-70), are helping to sensitize our consciousness regarding the ethical obligations to care for people with AIDS.

As they point out, it is an observable fact that we as physicians do not like to be told that we must treat a certain patient—or else. We must all work to uphold the ethical obligations of our profession without resorting to forced compliance regarding the care of AlDS patients.

As physicians, we are in the best position to know that HIV is not easily transmitted to health care providers who follow universal precautions. We may not have reached the commitment shown by Edward Jenner—who inoculated himself with trial smallpox vaccine and tested it by deliberately exposing himself to the potentially fatal disease—but most of us have made our own strong commitments. We have pledged to uphold a professional ethic that requires a compassionate response to the suffering of our fellow human beings.

We can join the authors to provide leadership that we as physicians owe to our patients, our communities, and our profession.

Ronald H. Levine, MD, MPH State Health Director NC Dept. of Environment, Health, and Natural Resources P.O. Box 27687 Raleigh, NC 27611-7687

With Our Compliments *To the Editor:*

Antioquia University Medical School, founded 120 years ago, used to have one of the best medical libraries in Latin America. Unfortunately, the financial situation of the institution gradually decreased the number of books and journals to such a point, that, early this year all subscriptions were stopped. To avoid deterioration of our pre- and postgraduate courses we are trying to obtain help

from different organizations. We would appreciate it if we could obtain a complimentary subscription to your journal.

Alberto Kurzer, MD Assistant Dean for Medical Education Universidad de Antioquia Apartado Aereo 12-26 Medellin, Columbia

NCMJ a Resource for New TV Show

To the Editor:

lam part of the research team behind the new television show, "Tough Target," hosted by former Chicago homicide detective J.J. Bittenbinder, that launched the week of September 19th. It is a weekly, half-hour, syndicated program airing in more than 75% of US markets. I'd like to obtain a copy of your September issue to assist us in our research of domestic violence in America.

I commend the editors of the *North Carolina Medical Journal* for publishing an issue that addresses domestic violence as a public health concern. Most importantly though, it is a national concern. The more we know about domestic abuse, the more we can prevent it in the future.

Marla Schalow Research Department "Tough Target" The Mel Entertainment Company 10 S. Riverside Plaza, Suite 670 Chicago, IL 60606

From the Editor:

We were pleased to provide Ms. Schalow with a copy of our special September issue and the Antioquia University Medical School library with a complimentary subscription. It's nice to know that the *Journal's* message extends to far—and near—corners of the globe.

Domestic Violence: A Hard-Line Primer...

To the Editor:

A hard-line primer for women who want to end domestic violence:

- 1. Do not marry until you have the ability to earn your own living.
- 2. Do not marry a rapist, murderer, child molester, alcoholic, drug addict, or a man who cannot earn a living.
- 3. Do not marry a man who was abused or saw his mother abused and has not had therapy to address his psychological response.
- 4. Maintain contact with your own friends and family. If your husband will not accept this, leave him.
- 5. Maintain your own savings, checking, and credit card accounts. If your husband will not accept this, leave him.
- 6. If your husband threatens you, leave him. If your husband threatens to harm you if you depart, buy a gun and leave him.
- 7. If your husband hits you, press charges and leave him.
- 8. You can always leave. No excuses. No whining. Sleeping in an open field or under a bridge and eating out of trash cans is better than sleeping and eating with an abusive husband.

Which is worse, the husband who abuses or the wife who allows herself to be abused?

C. Kent Price, MD Carolina Eye Associates, PA 264 Memorial Drive Jacksonville, NC 28546

...Offers No Simple Solution To the Editor:

Dr. Price's letter is a clear example of how we—society—fail to hold batterers responsible for the violence they commit. The question is always put to the victim: "If it's so bad why don't you just leave?" If only it were so simple. The real question should be put to the batterer—"If you're so unhappy with your partner that you must strike out, why don't you just leave?" Batterers choose to stay and choose to be violent. When we fail to hold them accountable, we collude with them in allowing the epidemic to continue.

Often a battered woman reaches out for help that's just not there. Historically, women leaving a battering relationship get no help from the very institutions they turn to for help—the criminal justice system, social services, health care, the church, etc. In spite of the fact that leaving is no guarantee of safety, that there are societal barriers to leaving, the important thing is that many battered women, in fact, are able to leave.

Physicians are in a unique position to identify the violence, to make it clear that the patient is not to blame, and to provide her with options and support. Making it clear that the batterer—not the victim—caused the abuse is the beginning of effective intervention.

I would reframe the question for Dr. Price: Which is worse, the batterer who chooses to abuse his partner or the woman trapped in a life of domestic terror?

Kathy Hodges, MSW, Director NC Coalition Against Domestic Violence P.O. Box 51875 Durham, NC 27717-1875

To the Editor:

Dr. Price makes several reasonable recommendations in his letter, among them, that victims of abuse maintain contact with their friends and family and that victims maintain their own savings and other accounts. These can be important coping strategies for victims of domestic violence.

Several comments, however, merit additional discussion. His recommendation that you "not marry a man who was abused" is unreasonable since most abused men do not themselves become abusers. By stating that "you can always leave. No excuses," Dr. Price falls into a common mistake made by physicians assisting victims. Such patients often find themselves trapped by financial dependency, lack of availability of support services, or dependent children who may be injured if they attempt to leave.

Most importantly, the period of greatest vulnerability for a patient is at the time of their effort to leave an abusive situation. Violence often escalates as the abuser attempts to reestablish control. We must be careful not to "blame the victims." This only increases their sense of isolation and dependency and erodes their confidence in their physician from whom they've sought help.

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Editor's note: Both Ms. Hodges and Dr. Gremillion contributed articles to the September *Journal* on domestic violence.

Making a Difference

To the Editor:

Let me congratulate Dr. Assad Meymandi, guest editor of the special September *Journal*, and the other authors for their marvelous contributions in our fight against family violence. I have read the issue from beginning to end and feel that it is indeed one of the most comprehensive and informative journals dealing with this matter that I have read in quite some time.

Having been part of the earlier conference on domestic violence (held May 23rd at NC State), and knowing of Dr. Meymandi's personal commitment, as well as the commitment of other members of the North Carolina Medical Society, I remain convinced that we will indeed make a difference as we try to combat this rising major public health problem in our country.

Again, my sincere congratulations and apprecation for all the good work that the *Journal* and the members of the North Carolina Medical Society do for all of us.

Robert E. McAfee, MD, President American Medical Association 515 N. State St. Chicago, IL 60610

An Editing Casualty

To the Editor:

I was disappointed to see the last paragraph of my editorial in the September issue omitted (NC Med J 1994;55:3856). It contained a list of our editorial committee. Our industrious and compulsive committee consisted of John D. Butts, MD; Thomas B. Cole, MD; David H. Gremillion, MD; Paige Hall Smith, PhD; Kathy Hodges, MSW; Fred S. Jones, MD; and T. Dale Simmons, MD.

Assad Meymandi, MD Chair, NCMS Domestic Violence Task Force 3320 Executive Drive, Suite 216 Raleigh, NC 27609

From the Editor:

In editing Dr. Meymandi's editorial, we chose to retain his picture at the expense of some of the text—including the list of committee members.

Spreading the Word

To the Editor:

I recently obtained a copy of your September issue devoted to domestic violence. It's an excellent issue that has been very valuable to us in our work. Many of our staff members were asked to speak to community groups in October, which was Domestic Violence Prevention Month. The information in your publication was invaluable.

When physicians take a stand on family violence it legitimizes it and gives it the credibility it needs to receive public attention.

Marcia D. Johnston, Director Development and Communications Family & Children's Service of Greater Greensboro, Inc. 301 E. Washington St. Greensboro, NC 27401-2911

Guidelines for Letters

All letters are subject to editing and abridgment. They must be typed, double-spaced, signed, dated, and include the author's phone number and address. Send letters to: *NC Medical Journal*, Box 3910 DUMC, Durham, NC 27710; or fax them to: 919/286-9219.

"Near Midnight"

Driving home it's dark and late. I am reminded of the health care reform situation. Craning my neck I gaze into the mirror looking for the putative Primary Care Provider of the Health Care Industry, but all I see is me. I straighten my tie, puff out my chest, lower my voice to registers of sincere authority, and give another try. Failing to achieve the proper effect, I relax back to the dimensions of an ordinary physician at the end of a long day and wonder what is bothering me so much about all of these Great Plans.

Like many in my situation I don't give much time to detail and nuance of The Controversy. Those who actively participate may cry "cop out" but, honestly, I'm simply too busy. The replies are hurled: "Your future's at stake!" "The health of the nation is in jeopardy!" "The Founding Fathers are rolling in their graves!" "The poor and helpless are dying!" "Socialized medicine will be the death of the greatest health care system the world has ever known!" "Physicians are a public utility!" "A physician's right to private enterprise shall not be abrogated!" "Access to adequate health care is a basic human right!"

"That's a fine collection of rhetoric!" thinks I, trying desperately to reconcile my conflicted sensibilities following this assault. It is the notion of *The Health Care Industry* that is so incongruous with my experience. True, my partner and I employ nine people and a fast computer in order to keep getting paid, but as general internists what do we produce? According to *Webster's Unabridged Dictionary*, "industry" originally meant "intelligent work." The sense of the word is now different. It has become a thing. Borrowed from the world of automobile production, this idea has been misapplied to our endeavors.

Another entry defines "industry" as "manufacturing enterprises as distinguished from agriculture." In medicine, we have kinship with the latter. Who among us does not daily tend to the effects of season in our patients? And, like a farmer's intimate knowledge of the land—which crop will do well on that hillside this year; how low the creek needs to be in the spring before the tractor can be taken to the bottom land—which of us does not benefit from long acquaintance with those whose medicines we prescribe, whose ailments we evaluate, whose ebb and flow we watch through the day-to-day life of our practice? Perhaps it is the setting. I practice in a very small, quite rural town in the Smoky Mountains. To describe my position here as that of a husbandman is certainly more apt than the currently assigned moniker of *Provider*.

The general tenor of this huge discussion, given the current defining terminology, rings false and leads me to despair. Reflecting on *Managed Competition* and *Vertical Integration* leaves me cold. Certainly, if for no other reason than its elegance, we should practice cost-efficient medicine; but our lack of courage and self-confidence, our intellectual laziness, our refusal to come to know our patients, and the abuse of our unique ability to directly profit from decisions that we make now threaten us with the complete repeal of our prerogative as free practitioners to do so. How can we expect to retain our independence if our financial demands require the inter-mediation of enormous pools of capital for satisfaction? We are thus beholden. If we as physicians become simply components of *The Industry*, I am afraid that our patiently obtained familiarity, the delicate personal ties with both those we serve and those that we consult, and even our own dynamic understanding of the nature of our work will be expeditiously razed to make way for the strip mall of modern industrial medicine.

Philip W. Royal, MD P.O. Box 550 Andrews, NC 28901

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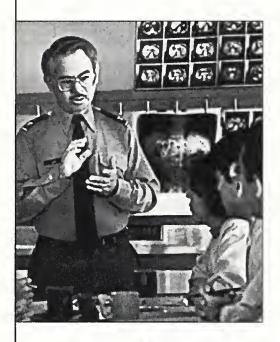
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Type text with one-inch margins and double space. Title page should include address, and phone and fax numbers of corresponding author. Submit a cover letter and a 3 1/2-inch computer disk with text written in MS DOS-compatible format (WordPerfect, Microsoft Word, Displaywrite, or ASCII).

Submit illustrations, in duplicate, as color 35mm slides or photos, or as black-and-white photos. Label them with author's name, note position in the text, and indicate orientation. Do not write on the backs of prints. Protect with cardboard when mailing. Type legends separately. Type tables, double-spaced, one to a page. Tables must have titles and consecutive Arabic numbers.

Minimize references (no more than 15 if possible, preferably 10 or fewer). The "Uniform Requirements" contain reference format. Authors are responsible for the accuracy and pertinence of citations. Try to avoid abbreviations, or keep them to a minimum. When used, define abbreviations at first usage in the text.

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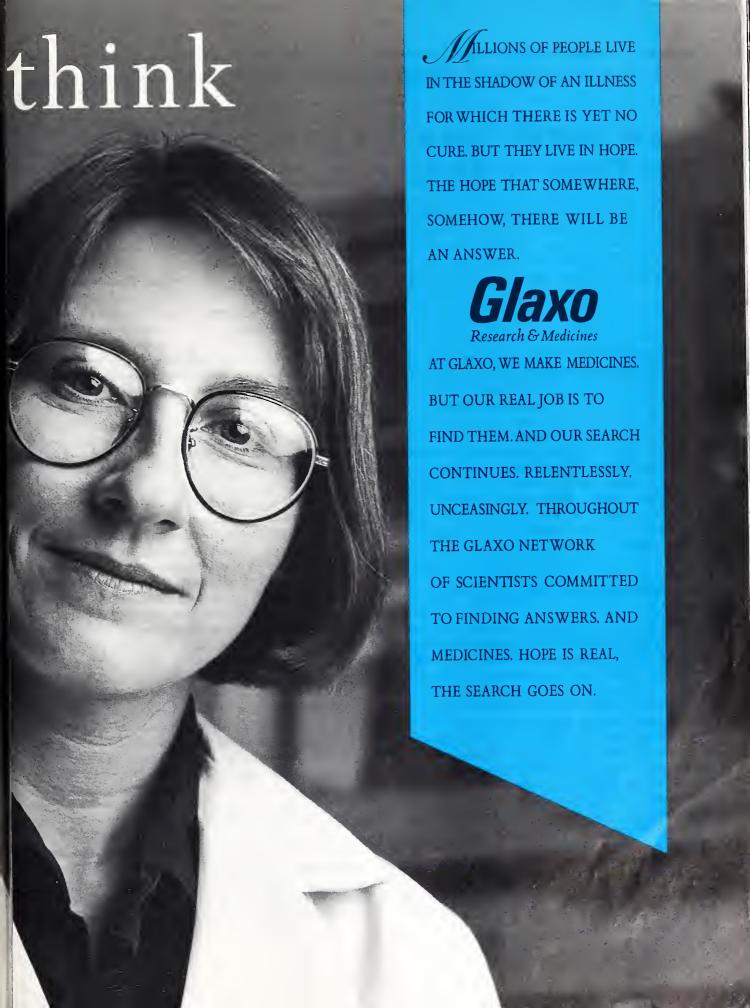
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How North Carolina Laws Affect the Care of Adolescents

Issues of Confidentiality and Consent

Daniel P. Krowchuk, MD, William Satterwhite, JD, and Beverly Campbell Moore, JD

Doctors routinely ask their adolescent patients about confidential matters: problems related to life at home or in school, to relationships with peers, or to consequences of sexual activity or substance use. Sometimes adolescents present for medical care unaccompanied by their parents or they request that their parents not be involved in decisions regarding evaluation and treatment. Such encounters raise questions about the clinician's responsibilities under the law. For example, what discussions with teenagers may be kept confidential? Under what circumstances may minor adolescents provide consent for medical care? In this paper we discuss such questions to provide clinicians with an understanding of the legal issues applicable to the medical care of adolescents.

The Concept of a Minor in NC

In North Carolina, persons under 18 years of age are "subject to the supervision and control" of their parents and are considered minors. In general, the law considers minors incapable of giving effective consent for medical treatment, although exceptions to the rule exist. Minors who are married, who serve in the armed forces, or who have received a final decree of emancipation from the court can provide consent for care. 2

The law is less clear about whether an unmarried minor adolescent mother can provide consent—for the care of her child or for herself. As noted above, parents are responsible for the "supervision and control" of their minor children, so we could infer that an unmarried minor adolescent, by virtue of her status as a parent, could provide consent for her child's medical

care. However, the mother is still a minor and, with few exceptions, North Carolina statutes require parental consent before minors receive medical treatment. The parental status of the minor is not recognized as a mitigating factor. Thus we have an apparent inconsistency: the minor parent can consent for her child's medical care but not for her own. In operation, many clinicians and health care facilities in North Carolina consider a minor adolescent parent able to consent for her own care, as well as her child's, providing that she clearly understands the benefits and risks of the treatment offered. Such a policy appears reasonable, even though the courts have not recognized this position. If a clinician believes that the minor does not fully comprehend the issues or if the proposed therapy carries significant risks, it would be prudent to involve the adolescent's parents or guardians in decisions regarding her medical care or that of her child.

Because adolescents are becoming increasingly involved in their own health care, some states have embraced the concept of a "mature minor." This allows minors to give effective consent if: 1) they are at least 14 or 15 years old; 2) the risks of therapy are not serious; 3) the minor understands the benefits and risks of treatment; and 4) the minor, in the eyes of the physician, is able to provide the same degree of informed consent as an adult.³ To date, neither the North Carolina Court of Appeals or Supreme Court has recognized the "mature minor" doctrine. As a consequence, physicians should apply the doctrine with caution.

Illustration by Cases

In the absence of a "mature minor" rule, other North Carolina statutes govern the treatment of adolescents. To illustrate these, we present eight hypothetical cases, each followed by a discussion of and commentary on the relevant legal issues.

Case 1: A 16-year-old male thinks he may have con-

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tracted a sexually transmitted disease. He asks that information regarding his visit be kept confidential. Can you legally comply with this request?

NC statutes provide that minors may give effective consent to procedures for the prevention, diagnosis, and treatment of: 1) "venereal disease" and other reportable diseases, 2) pregnancy, 3) "abuse of controlled substances or alcohol," and 4) "emotional disturbance." The law requires that parents *not* be notified about visits for such problems unless the adolescent gives permission or, in the clinician's opinion, parental involvement is "essential to the life or health" of the adolescent. However, the law appears to equivocate about confidentiality, stating that the physician "may give information" if contacted by the parents. Even so, providing information to parents without the adolescent patient's permission or knowledge is illadvised. If circumstances dictate parental involvement (for example, if the patient is contemplating suicide), it is wise to discuss the issue with the teenager prior to notifying the parents.

Comment: Despite legal assurances, the confidential relationship may be breached inadvertently. For example, if an adolescent patient is contacted at home to discuss the results of testing, parents may become aware of the clinical visit and question its purpose. Therefore it is important to arrange, in

"...it is important to arrange,

in advance, how to communicate

information of a potentially

sensitive nature."

advance, how to communicate information of a potentially sensitive nature. The adolescent may wish to be contacted discreetly at school through the school nurse. Other patients may prefer to telephone the physician's office to obtain test results, but it is wise to have an "fail-safe" mechanism in

the event that the teenager does not telephone as scheduled, a not infrequent occurrence.

The nature of a patient's disease may preclude confidentiality. North Carolina physicians are aware that certain diseases, including sexually transmitted diseases (STDs) such as syphilis, gonorrhea, chlamydia, nongonococcal urethritis, chancroid, lymphogranuloma venereum, and granuloma inguinale^{6,7} must be reported following diagnosis. Human immunodeficiency virus (HIV) infection must also be reported.⁶ Once such a transmissible disease is reported, a public health investigator may contact the patient to identify sexual contacts and assure that they receive appropriate evaluation and treatment. It is important to advise adolescents with reportable STDs that such contact may occur but that the investigator will make every effort to preserve confidentiality. From a practical standpoint personnel constraints often limit contact tracing to only the most "serious" STDs (HIV infection and syphilis).

Finally, sending a bill for services rendered may disrupt confidentiality if the parents open the teenager's mail or raise questions about the correspondence. If services cannot be provided without charge or an alternative payment procedure arranged in advance, the adolescent should be referred to a facility able to provide care at no cost or at a reduced rate.

Case 2: A 15-year-old female asks for oral contraceptives but does not want her parents involved. Can you legally provide this service?

US Supreme Court decisions, federal regulations, and state law all support an adolescent's right to obtain contraception without parental consent or notification.³ Nearly 30 years ago, the Supreme Court struck down state laws prohibiting the prescription of contraceptive agents and their use by married adults.⁸ Since then, the Court has ruled that a constitutional right to privacy in the matter of birth control extends to unmarried adults⁹ and minors.¹⁰ In addition, Title X of the Public Health Service Act of 1970 mandates that federally funded family planning programs provide contraception without regard to age or marital status.^{3,11} Clearly, both Supreme Court decisions and federal regulations indicate that a teenager has the right to obtain contraception.³

NC law appears to support an adolescent's right to obtain birth control devices in a confidential manner. Recall that the NC statutes declare that "any minor may give effective consent for the *prevention of...pregnancy*" and that care should be confidential. Our interpretation has not been tested in the courts, but it is reasonable to infer that contraceptive agents may be provided to teenagers without parental involvement.

Comment: Although minors may give consent for contraception, clinicians should be wary of requests from very young teenagers. In such circumstances, an important hidden agenda may be present. It is true that 12-year-olds may be physiologically mature, but from a cognitive perspec-

tive they are unlikely to make informed decisions about sexual behavior. Young teenagers may be exploited sexually by older partners or may be victims of incest. Sometimes young teenagers are sent "for birth control" by a parent who is concerned that they are or may become sexually active. To simply dispense a contraceptive without investigating the circumstances of the request is a disservice to the patient.

Case 3: A 17-year-old female is eight weeks pregnant and wants an abortion. Does NC law require parental permission for this procedure?

At present, a minor female may give consent for an abortion without parental consent or notification. However, we need to explain the law pertaining to this issue further. The treatment of minors statute⁴ allows minors to provide consent for certain conditions but states "...This section does not authorize the inducing of an abortion..." Therefore it would appear that NC law prohibits minors from providing consent for abortion. However, US Supreme Court decisions support such a right and effectively supersede NC law.

In 1973, the US Supreme Court held¹² that statutory restrictions on first-trimester abortions were unconstitutional. Minors therefore have a right to obtain an abortion, but many states

have enacted laws requiring advance notification or consent of one or both parents. The US Supreme Court has held that such notification or consent is unconstitutional unless the state provides an alternate mechanism for approving abortion. This mechanism—often called judicial bypass—allows a pregnant adolescent to appear before a judge who determines whether the teenager is making an informed decision or, failing this, if an abortion without parental involvement would be in her best interest. If one or both conditions are met, the court may authorize the abortion.

Since North Carolina does not have a judicial bypass provision, one court has implied that its statute prohibiting minors from providing consent for abortion is unconstitutional. As a result, this provision of the statute is not enforced and, in practice, minors may consent for abortion without parental notification or consent.

Comment: Minors may obtain abortion without parental involvement, but most adolescents contemplating this procedure will benefit from the advice and emotional support of their parents. Clinicians should explore the teenager's relationship with her parents and encourage her to involve them in decisions about the pregnancy. Many adolescents are reluctant to share such information for fear of parental anger or disappointment but, fortunately, these fears are usually exaggerated. Parents prove to be more understanding than the teenager believed possible. In some cases, of course, parental involvement is not in the patient's best interest. There may be well-founded concerns about physical abuse that would result from disclosure of the pregnancy or, if the pregnancy is the result of incest, the parents may not be helpful. In such circumstances, it is prudent to look for alternative sources of support for the teenager.

Case 4: A 16-year-old male asks to be tested for HIV infection. His parents are not present and he asks that they not be involved. Can he give consent for testing?

A minor may consent for confidential HIV testing although the two statutes bearing on this issue appear contradictory. In North Carolina, one statute specifically states that an "unemancipated minor may be tested for AIDS virus infection without the consent of the parent or legal guardian of the minor when the parent or guardian has refused to consent to such testing and there is reasonable suspicion that the minor has AIDS virus or HIV infection or that the child has been sexually abused." As written, this law appears to prohibit minors from consenting for confidential HIV testing without parental involvement. However, the intent of the statute was not to limit testing but rather to permit it when indicated, regardless of parental objections.

Support for confidential HIV testing in North Carolina adolescents derives from the treatment of minors statute, which states that minors may give effective consent for the "...diagnosis...of venereal disease and other reportable diseases..." HIV infection is sexually transmissible and must be reported by physicians in North Carolina. Therefore it is reasonable to conclude that adolescents may obtain HIV testing without parental involvement.

Comment: Although an adolescent has a "right" to request confidential HIV testing, the clinician's obligation extends beyond simply writing the order. Individuals requesting HIV testing should receive in-person, pre-test counseling to find out why the patient seeks testing, assess the adolescent's knowledge about the meaning of HIV test results, investigate how the patient might react if the test were positive, and determine whether the teenager has a support system in the event that the test is positive.

The test result should be communicated in person. If it is negative, the need for further testing and strategies to reduce the risk of infection in the future should be discussed. If the test is positive, the clinician should allow the patient to express his or her feelings and then determine whether the patient is at risk of self-harm. If their is no threat of self-harm, the patient may need additional information about HIV infection, strategies for involving the adolescent's support system, plans for further evaluation and treatment, and methods of reducing risks to the patient and others.

Case 5: A 16-year-old female has an examination to allow sports participation. Her parents are not present. She needs an diphtheria-tetanus booster, has no known allergies, and has had no known adverse reactions to prior immunizations. Can she give consent for this immunization?

The North Carolina treatment of minors statute⁴ appears to support a minor's right to obtain immunizations without parental involvement. It states that minors may give consent for "...the prevention...of venereal disease and other diseases reportable under GS 130A-135..." This includes diphtheria, pertussis, tetanus, polio, measles, mumps, rubella, and hepatitis B.^{6,7} Despite apparent affirmation of the minor's right to give consent, to our knowledge this interpretation of the statute has not been tested in NC courts. Since the provision of immunizations is usually not an emergency nor an issue for confidentiality, physicians should make every effort to notify and obtain consent from parents before immunizing minors.

Case 6: A 15-year-old male is brought in with a superficial laceration of the leg that requires suturing. He is accompanied by an adult friend of the family, but all attempts to contact the adolescent's parents are unsuccessful. Can you treat him?

The North Carolina treatment of minors statute permits a physician to provide care to a minor without parental consent in certain emergencies. The statute specifies these criteria: I) the parents cannot be located within the time during which the minor needs treatment, despite searching "with reasonable diligence;" 2) the identity of the minor is unknown, or the need for immediate treatment so apparent that efforts to obtain parental consent would delay treatment and endanger the life of the minor; 3) a delay while attempting to contact the parents would worsen the minor's condition; or 4) the parents refuse consent and the delay required to obtain a court order would

endanger the life or seriously worsen the physical condition of the minor. In this last circumstance, the attending physician must obtain, from another physician licensed to practice medicine in North Carolina, a second opinion that the procedure is necessary in order to prevent immediate harm to the minor.

In the case we present here, reasonable efforts to contact the patient's parents were unsuccessful and repair of the laceration could proceed with the teenager's consent. In addition, the patient could provide consent for a diphtheria-tetanus booster immunization if required.

Case 7: During the interview of a 15-year-old female, you learn that she has a 19-year-old male sexual partner. Does the discrepancy in ages between partners constitute "statutory rape?" Are you responsible for reporting this situation to protective services officials?

NC criminal statutes that apply to minors define first-degree rape as vaginal intercourse with a victim who is under the age of 13 by a perpetrator who is at least 12 years old and four or more years older than the victim. ¹⁶ First-degree sexual offense involves other sexual acts with a victim who is under the age of 13 by a perpetrator who is at least 12 years old and four or more years older than the victim. ¹⁷ Because of the age of the patient, the situation described above does not fulfill the provisions of first-degree rape or sexual offense in North Carolina. Reporting is not required.

Comment: This case emphasizes the obligations of clinicians with respect to reporting information to appropriate authorities. In North Carolina, health care providers have the duty to: 1) report to the Department of Social Services any juvenile (minor) suspected to be abused or neglected as defined by statute; 18,19 and 2) to report to the police "...every case of a wound, injury, or illness in which there is grave bodily harm or grave illness if it appears to the physician or surgeon treating the case that the wound, injury, or illness resulted from a criminal act of violence." 20

No crime may have been committed in the case presented above, but is it possible that the teenager is being abused or neglected, and does the clinician have a duty to report the case to the Department of Social Services? To answer these questions, we must review the legal definitions of abuse and neglect.

NC law considers a minor to have been *abused* when a parent or guardian 1) "inflicts or allows to be inflicted" physical injury or "creates or allows to be created" a substantial risk of physical injury, 2) "creates or allows to be created" serious emotional damage, or 3) "commits, permits, or encourages" the commission of a violation of certain laws upon the minor. Many crimes are enumerated in the final clause of this statute, specifically including statutory rape and sexual offenses such as the taking of indecent liberties with children. Taking indecent liberties with children occurs when an individual 16 years of age or older and at least five years older than the minor child 1) "willfully takes or attempts to take any immoral, improper, or indecent liberties with any child of either sex under the age of 16 years for the purpose of arousing or gratifying sexual desire,"

or 2) "willfully commits or attempts to commit any lewd or lascivious act upon or with the body or any part or member of the body of any child of either sex under the age of 16 years."²¹ Neglect occurs when a minor "does not receive proper care, supervision, or discipline from his parent..."¹⁹

The statutory duty to report suspected child abuse or neglect applies to instances in which there is some type of parental misconduct—either being an assailant or in permitting such conduct without intervening. The teenager presented in our case does not appear to have been abused although we might speculate about neglect by inadequate parental supervision. Nevertheless, from a legal perspective, there are insufficient grounds to report the case to the Department of Social Services.

Regardless of the statutory issues, adolescent relationships characterized by great disparity in age between a younger teenage female and an older male partner or those in which the teenage female has a developmental disability raise concern that the she is being exploited or victimized. In such cases, a prudent clinician will gather information about the nature of the adolescent's relationship, including whether she is a consenting partner and her cognitive abilities. If she feels pressured to participate in activities for which she is not "ready," the clinician may help her develop ways to postpone such involvement and help her discuss these issues with her parents. When adolescents with developmental disabilities lack the capacity to make informed decisions about sexual activity, enhanced parental involvement is appropriate and consultation with local social service authorities may be indicated.

Case 8: The parents of a 16-year-old male who is in for a "check up" request that you perform a "drug test" without their son's knowledge. Should you comply?

In this case, the parents clearly are concerned that their son may be using controlled substances. Presumably, they want the results of testing to confirm or refute their suspicions. Legal, ethical, and practical issues bear on the clinician's action.

From a purely legal perspective, clinicians might wonder whether testing without the adolescent's knowledge is sanctioned and whether they might be liable if the teenager learns that he was tested without his consent. NC law provides that a minor is "subject to the supervision and control of his [or her] parents" and, with the exceptions discussed previously, requires parental consent prior to medical treatment. Therefore the patient's parents may request testing for substance use and the teenager's consent is not required. Clinicians would appear to be at little jeopardy in the unlikely event of a suit brought by the minor patient.

The overriding issue, however, is not legal, but ethical. Clinicians might legally perform the testing without the teenager's consent, but should they? We contend that, in most circumstances, they should not. Doing so almost certainly will compromise the clinician's relationship with the adolescent and limit his or her effectiveness in future encounters. Involuntary screening for substance abuse, however, may be indicated in very young teenagers or those whose competence to make

decisions regarding their health care is impaired.22

Practical considerations also enter into decisions about involuntary testing for substance use. Amphetamines, barbiturates, cocaine metabolites, codeine, cannabinoids, and phencyclidine may be detectable in urine only for two to three days following the most recent use.23 If the adolescent has not used these substances recently, a negative result may give a false sense of security when, in fact, there is a problem with substance abuse.

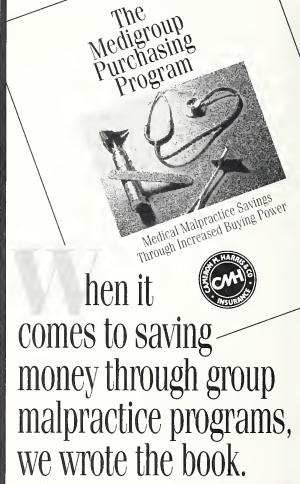
A request for involuntary testing should be viewed as an opportunity for a dialogue with the parents and the adolescent about the suspected problem. Information, gathered from both parties, may permit referral to a health care professional experienced in mental health and substance use issues for evaluation and to determine the need for counseling and treatment.22

Summary

The care of adolescent patients frequently presents clinicians with legal dilemmas. We have reviewed some of the relevant legal issues, but our comments are not intended to provide legal advice. Rather they are guidelines that may be helpful in these complex clinical situations. Readers should consult legal counsel for specific questions or concerns. \square

References

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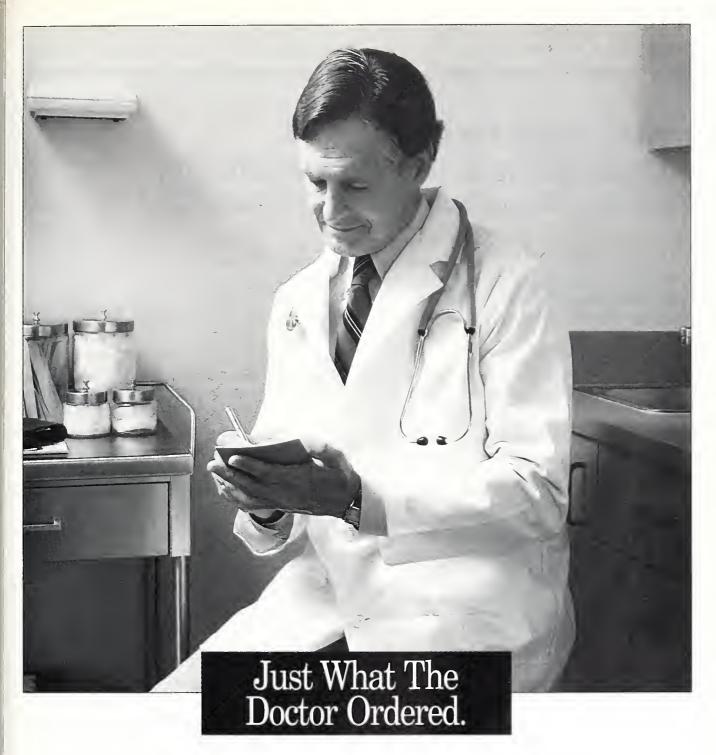
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Mandatory Reporting of Occupational Health Problems

A New Surveillance Program in North Carolina

Linda M. Frazier, MD, MPH, Bill Jones, MPH, Dennis Darcey, MD, MSPH, Ricky Langley, MD, MPH, and Susan Randolph, MSN, RN, COHN

Since January 1, 1994, North Carolina doctors and laboratories are required to report, and hospitals are encouraged to report, the following conditions: silicosis, asbestosis, elevated blood lead levels in adults, and serious and preventable farm injuries. This new law requires that these four occupational health conditions be reported to the Occupational Health Section of the North Carolina Department of Environment, Health, and Natural Resources (NCDEHNR).

The rationale of the program is the public health tradition of case surveillance for tracking infectious disease epidemics. Now, after a case is reported, an industrial hygienist, occupational health nurse, or both will determine whether risk of occupational injury or illness persists. High-risk workplaces will be advised about how to reduce subsequent injury or illness. By reporting on these conditions, the physician, laboratory, or hospital will be enlisting the Occupational Health Section to help individual patients and to reduce exposures for coworkers and others.

Why Do States Mandate Disease Reporting?

Disease reporting is a crucial component of public health information systems. It is complemented by other surveillance mechanisms such as death rates and mortality descriptors (obtained from death certificates and medical examiner investigations), birth outcomes (obtained from birth certificates), and cancer rates (obtained from tumor registries). Sometimes information is supplemented by specific investigations at selected clinics or by secondary analyses of Medicare diagnosis

codes, hospital discharge diagnoses, or workers' compensation claims. But the rapidly obtained information contained in required physician-based reports cannot be replaced by other sources.

Surveillance of medical conditions that have public health importance has been conducted for many years. In the 17th century, Daniel Defoe recorded (in his great work, A Journal of the Plague Year²) the daily number of fatal plague cases in London. City officials used the data to determine which sections of the city to quarantine; Defoe used them to supplement his descriptions of the rapid demise of individuals in his neighborhood and the terrible impact of the disease on commerce, travel, and social interaction. In 1854, John Snow used reports of disease occurrence to calculate cholera rates in London's municipal districts. In a classic public health epidemiologic investigation he showed that the water pump in Broad Street was the source of the London cholera epidemic.

At present, each state specifies a list of infectious diseases to be reported, and state health departments report certain conditions to the Centers for Disease Control and Prevention (CDC). The accumulated information is used to evaluate epidemiologic trends over time, to assess the effectiveness of prevention efforts, and to plan new preventive interventions. When warranted, state and federal agencies educate physicians about certain diseases and how to better recognize them.

In the past few years, this kind of disease reporting has documented the rapid rise of multidrug-resistant tuberculosis. The CDC's Division of Tuberculosis Elimination recently compiled statistics showing that nearly 10% of tuberculosis patients are infected with strains resistant to isoniazid, rifampin, or both. These data are used to support aggressive treatment of

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tuberculosis (use of four-drug regimens; direct observation of dosing; early use of respiratory isolation for hospitalized patients suspected of having tuberculosis). The data also mean that health care personnel need better respiratory protection and more frequent tuberculin testing.^{3,4}

Reportable Conditions in NC

Table 1 and Table 2 (next page) show medical conditions that are reportable in NC. Reporting forms can be obtained from the

offices listed. For many conditions, reports may be made to the health department of the county where the physician practices; telephone numbers are available from local telephone books or directory assistance.

The infectious diseases listed in Table 1 require telephone reporting to the local county health department because they have potential for epidemic spread or require rapid action. Suspicion of a disease of unusual significance (one meriting epidemiologic investigation) may be reported even if confirmatory diagnostic tests are pending. Examples include outbreaks of the following: nosocomial infections, diarrhea, illnesses accompanied by skin rash, illnesses in day care centers, food or waterborne diseases, and other diseases suspected of having a common source.

Reporting of Occupational Conditions

Infectious diseases are not the only cause of preventable morbidity and mortality. Occupational and environmental diseases are also preventable. For example, lead toxicity is very common among adults (15,623 cases of adult lead toxicity were reported in 20 states during the first three quarters of 1993). Also as example, a New Jersey surveillance program confirmed 235 cases of silicosis during 1979-1990. Follow-up of identified cases showed that 21% of employers continued to permit uncontrolled silica exposure of workers. Only 52% of the workplaces conducted environmental monitoring, and only 30% of the companies provided exposure prevention training for employees. There was no medical surveillance at more than 40% of the inspected companies and inadequate surveillance at 30%.

In 1987 the National Institute for Occupational Safety and

Table 1. Reportable communicable diseases in NC

Telephone reports should include: disease (suspected or diagnosed), date of onset, patient's name or other identifying information, patient's address, patient's age, sex and race/ethnicity, laboratory confirmed (yes/no), patient's physician, and name/telephone number of person making the report.

Report within 24 hours by telephone and reporting card to local county health department because of potential for rapid spread:

Anthrax

Botulism

Campylobacter infection*

Chancroid

Cholera*

Foodborne disease:

Clostridium perfringens*

Staphylococcal*

Other/unknown*

Gonorrhea, all sites

Granuloma inguinale

Hemophilus influenza, invasive disease

Hepatitis A*

Hepatitis B, acute

Measles (rubeola)

Meningococcal disease

Plague

Polio, paralytic

Rabies, human

Rubella

Salmonellosis*

Shigellosis*

Tularemia

Typhoid, acute*

Whooping cough

Other diseases of unusual significance, incidence, or concentration that may merit

epidemiologic evaluation

Report withIn seven days by reporting card by local county health department:

AIDS

Amebiasis

Blastomycosis

Brucellosis

Chlamydia

Dengue

Encephalitis

Hepatitis B, carrier

Hepatitis, non-A, non-B

HIV infection

Kawasaki syndrome

Legionellosis

Leprosy

Leptospirosis

Lyme disease

Lymphogranuloma venereum

Malaria

Meningitis, pneumococcal

Meningitis, viral

Mumps

Psittacosis

Q fever

Reye's syndrome

Rocky Mountain spotted fever

Rubella, congenital syndrome

Tetanus

Toxic shock syndrome

Trichinosis*

Typhoid carrier*

Typhus, epidemic

Yellow fever

* In addition to physician reporting, restaurants and other food or drink establishments are required to report outbreaks or suspected outbreaks of foodborne illness in customers or employees.

Reportable event	When to report	Where to report
Occupational disorders: Silicosis Asbestosis Serious and preventable farm injuries Elevated blood lead levels in adults*	within 15 days	Occupational Health Section, NCDEHNR 919/733-3680
Elevated blood lead levels in childrent	five working days	Childhood Lead Poisoning Prevention Program, NCDEHNR, 919/715-3293
Suspected child abuse or neglect	not specified	Local county Department of Social Services (consult phone book)
Chilldhood immunizations	monthly	Immunization Registry, NCDEHNR 919/733-7752
Cancers	annually	Cancer Registry, NCDEHNR 919/715-4555
Pesticide poisoning	not specified	Environmental Epidemiology, NCDEHNR 919/733-3410

^{*} In adults, reporting of blood lead levels of 40 μg/dL or higher is mandatory and reporting of levels above 25 μg/dL is encouraged; NC physicians are required to report only when laboratories do not report (that is, when the test was sent to an out-of-state laboratory).

Health (NIOSH), in cooperation with health departments in 10 states, began sponsoring provider-based reporting projects. These projects provide surveillance and follow-up of occupational health conditions such as silicosis, occupational asthma, pesticide poisoning, lead poisoning, carpal tunnel syndrome, burns, and noise-induced hearing loss. The model projects are part of NIOSH's SENSOR program (Sentinel Event Notification Systems for Occupational Risk). Each state's SENSOR program focuses on specific occupational health conditions; not all conditions are under surveillance in each state. The US Public Health Service, in its position statement, *Healthy People 2000*, has reinforced the need for improved occupational health surveillance and, with NIOSH, has expanded the funds available to state and territorial departments of health for surveillance of occupational diseases and injuries.

Newly Reportable Conditions in NC

Effective January 1, 1994, NC law requires that certain occupational medical conditions be reported to NCDEHNR's Occupational Health Section. This puts NC among the states that have taken this important step toward controlling worker illness or injury. The NC SENSOR Project was established to carry out the surveillance. A steering committee, which directs project activities, consists of representatives from private medical

practice, from teaching medical centers, the NC Industrial Commission (workers' compensation), industry, the American Lung Association of NC, and the UNC School of Public Health. The conditions targeted for preventive activities are silicosis, asbestosis, elevated blood lead levels in adults, and serious and preventable farm injuries. We review those conditions here.

Silicosis: Diagnostic criteria for silicosis are not specified by the law. The standard criteria of diagnosis⁷ entail three requisites: 1) The patient must have been exposed to silica in adequate amounts for an adequate duration of time. Occupations commonly associated with silica exposure include sandblasting, mining or tunneling, milling, pottery working, glass making, or foundry, quarry, or abrasives work. Quartz-containing materials used in industry include granite, slate, and sandstone. 2) There must be abnormalities consistent with silicosis on a chest radiograph. 3) Other illnesses, such as tuberculosis or fungal lung infection, which may mimic silicosis, must be excluded.⁸

Silicosis may present in one of three forms. Acute silicosis is infrequent and is associated with a rapid downhill course characterized by dyspnea and progressive restrictive lung disease. It occurs after very high silica exposure for a period of two to four years or sometimes after only a few weeks of massive exposure such as occurred during the construction of the Gauley Bridge tunnel in West Virginia during 1930-1931; 400

[†] In children, reporting of blood lead levels of 25 µg/dL is mandatory and reporting of levels above 10 µg/dL is encouraged; only laboratories are required to report but physicians are encouraged to report. Physician reporting of pesticide poisoning is voluntary.

of the 2,000 workers engaged in rock drilling there died of acute silicosis. Accelerated silicosis, due to moderately high exposure for five to 10 years, is similar in appearance to classic silicosis, but autoimmune connective tissue diseases are sometimes associated with it. Classic silicosis is the silica-induced pneumoconiosis most often recognized. It results from to low to moderate exposure to silica dust for 20 years or more. Nodular opacities are seen on chest radiographs, more prominently in the upper than in the lower lung fields. Mild to moderate radiographic changes may not be associated with functional impairment. In some cases progressive massive fibrosis produces marked radiographic changes, respiratory impairment, restrictive changes on pulmonary function tests, and impaired gas exchange.⁸

Asbestosis: This pneumoconiosis is produced by inhalation of asbestos fibers. It is characterized by diffuse interstitial fibrosis of the lung parenchyma, often accompanied by thickening, and sometimes calcification, of the pleura. Clinical findings include dyspnea on exertion and a non-productive cough. Dry ("Velcro") crackles may be present at the lung bases. In advanced cases the fingers may be clubbed. Diagnostic criteria for asbestosis are not specified by law; diagnosis should be based on a history of asbestos exposure and typical radiographic changes. Low-level asbestos exposure may produce asymptomatic pleural plaques; most patients with symptomatic asbestosis have had moderate to high exposure.

Pulmonary function testing usually demonstrates restriction and reduced diffusing capacity. Plain chest radiographs typically show symmetrical but irregular opacities that tend to spare the upper lobes. Bilateral pleural thickening or diaphragmatic calcification coupled with bibasilar fibrosis suggest the diagnosis. Pathologic findings are of non-specific pulmonary fibrosis, but the presence of asbestos bodies in association with lung fibrosis strongly suggests asbestosis.

Occupational exposure to asbestos may occur during building demolition or repair, and during construction when working with asbestos-containing textiles or insulation. Exposure may also occur during automobile servicing, especially repair of brake linings or clutch facings.

Physicians are required to report patients who have had significant asbestos exposure and have typical clinical, pulmonary function and radiographic changes. After a report is received, the NCDEHNR will ask for confirmation of the diagnosis by pulmonary specialists who evaluate cases for SENSOR, the NC Dusty Trades Program, and the NC Industrial Commission.

Although not specifically required by law, physicians are encouraged to report asbestos-associated conditions such as mesothelioma, bilateral pleural plaques with pleural thickening, or diaphragmatic calcifications even though the patient does not have pulmonary asbestosis (a notation should be made on the reporting form that the patient does not have asbestosis). Pleural plaques usually do not cause significant pulmonary impairment, but they do indicate exposure to asbestos. Early

detection of such findings may identify a workplace with remediable asbestos exposure long before the first case of asbestosis develops.

Lead Toxicity in Adults: Blood lead levels 40 μ g/dL or greater in persons aged 18 or older must be reported. This is the level at which the Occupational Safety and Health Administration (OSHA) mandates increased monitoring, even removal from lead exposure at work. There is, however, substantial evidence of systemic effects at levels less than 40 μ g/dL, including neurotoxicity (at levels as low as 30 μ g/dL) and reproductive toxicity in both men and women. Pregnant women workers should maintain blood lead levels well below the OSHA standard. In neonates and children, blood lead levels as low as 10 μ g/dL can produce long-lasting deficits in intelligence, language function, attention span, and classroom behavior. 10,11

Adults who have high blood lead levels from occupational exposure risk contaminating their homes with dust from their clothing and skin and thereby affecting children and pregnant women. The law allows health departments to follow up on cases of severe adult lead toxicity (40 μ g/dL or higher), but physicians should advise reduced exposure of workers with lower levels to prevent secondary exposure of family members and because even levels less than 40 μ g/dL are harmful to adults.

Serious Farm Injuries: Most farms are not subject to OSHA regulations. Many farm owners do not carry workers' compensation insurance. As a result, we do not have accurate information about the extent of injury and illness in the agricultural industry. Information regarding seasonal and migrant workers is especially difficult to obtain. Despite these epidemiological shortcomings, we have enough data to know that agriculture is one of the most hazardous of all occupations. Injuries and illnesses occur from exposure to machinery, animals, chemicals, plants, and sun. Furthermore, children make up a significant proportion of the work force and suffer many of the injuries. It is estimated that agricultural work results in 23,000 non-fatal injuries and nearly 300 preventable child deaths in the US each year. 12,13

In NC, there are approximately 4.1 deaths and 480 disabling injuries per 10,000 farm workers each year. ¹⁴ Health care providers in four eastern NC counties recently reported 255 farm-related injuries and illnesses during a two-year period. More may have occurred but not been recorded because no medical assistance was sought. ¹⁵

NC's new legislation requires that doctors report serious and preventable agricultural injuries within 15 days of providing care for injuries sustained while working on a farm. This includes injuries caused by tractor roll-overs and run-overs and amputations from limb entanglements in farm equipment or farm machinery. All injuries that involve significant temporary or permanent incapacity to continue work, disability, or treatment requiring a hospital stay should be reported. When in doubt, physicians should over-report rather than under-report.

How To Report an Occupational Disorder

Reports regarding the four occupational conditions (Table 2) must be submitted within 15 working days after diagnosis. Elevated blood lead levels in adults (aged 18 and above) must be reported by the testing laboratories; physicians must report only when out-of-state laboratories have been used. Although they are not mandated by law, medical facilities are encouraged to report any of the occupational conditions.

Reports must be made on surveillance forms provided by or approved by the Occupational Health Section of NCDEHNR (Fig. 1, at right). Material explaining the law, including a copy of the reporting form, was sent to all North Carolina hospital administrators and hospital chiefs of staff in February 1994. Additional surveillance forms can be obtained from the sources in Table 2. Since reporting is required by law, no consent or release is required of the patient for submitting the reporting form. Persons who report are immune from civil liability under GS 130-A-459. Further medical information or records are obtained only with the patient's consent. All medical information is confidential and handled by NCDEHNR guidelines.

What Happens When an Occupational Disorder is Reported?

The Occupational Health Section of NCDEHNR has staff and resources to follow up on reported cases. Selected patients are contacted by telephone to gather information about the medical condition and work exposure. If appropriate, an industrial hygienist or occupational health nurse from the Occupational

Health Section visits the work site to assess workplace hazards. Advice is provided to the employer and to employees on how to reduce subsequent illness or injury. A representative of the NC Department of Labor may visit a workplace on specific referral by the Occupational Health Section. The Department of Labor inspector determines compliance with workplace safety and health regulations and makes recommendations about improving job safety.

Patients sometimes express concern that they will lose their jobs if the physician releases information about their conditions. All patient-identifying information reported to the NCDEHNR remains strictly confidential. The individual's name, address, Social Security number, or other personal identifying information is protected. No patient's identity is released to employers or to other government agencies. SENSOR program reports show data only in aggregate to provide information on disease trends and help assess prevention needs. No individuals can be identified.

By reporting an occupational condition, the physician, laboratory, or hospital enlists NCDEHNR to help the patient and to reduce exposures for others. Similar programs in other states have found that the coworkers of index cases often have continued, but remediable, exposures. Often manufacturing processes can be changed to reduce exposures and farm communities can take advantage of safety training to reduce deaths, mechanical injuries, and toxic exposure.

The Occupational Health Section's surveillance center is located in Raleigh. SENSOR operates in conjunction with previously established occupational health programs such as the NC Dusty Trades Program. For more information or comments about the project, contact Bill Jones, Project Coordinator, or Susan Randolph, Project Director, at 919/733-3680.

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SENSOR PROGRAM REPORT OF OCCUPATIONAL DISEASE/ILLNESS/INJURY

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Fig 1: North Carolina's new occupational disease/illness/injury reporting form. Original forms should be obtained from the NCDEHNR Division of Epidemiology, Occupational Health Section, at 919/733-3680.

Continuing Medical Education

November 4-5

2nd Annual Minority Health Symposium

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Place: Winston-Salem

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Duke Cardiology Symposium: Secondary Prevention of Left Ventricular Dysfunction—New Insights in Congestive Heart Failure Management

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Duke University, Durham

Credit: 7 hours Category 1, AMA

Fee: \$75

Info: Renée Story, Division of Cardiology, Box 3356, Duke

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919/681-3447

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Place: Kenan Center, UNC-Chapel Hill

Credit: 11 hours Category 1, AMA; optional introductory

session: 2 hours Category 1, AMA

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physicians, \$75 nurses

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Info: Iris Ahlheit, RN, Rex Hospital, 4420 Lake Boone

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Place: Friday Center, UNC-Chapel Hill
Credit: approx. 16 hours Category 1, AMA
Fee: \$150; Thursday or Friday only, \$100
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in Head and Neck Anatomy

Place: Virginia Commonwealth University,

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Credit: 44 hours Category 1, AMA Fee: \$400 physicians, \$250 residents

Info: Hugo R. Seibel, MD, Dept. of Anatomy,

P.O Box 980709, Medical College of Virginia, VA Commonwealth University, Richmond, VA 23298-0709, 804/828-9623, fax: 804/828-9477

April 5-8

19th Annual Internal Medicine Conference

Place: Friday Center, UNC-Chapel Hill Credit: approx. 25 hours, Category 1, AMA

Fee: \$350

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Comprehensive Cancer Center

"Signalling Pathways in Development and Cancer"

Place: Lineberger Cancer Center

Info: Sarah Rimmer, UNC School of Medicine,

CB# 7295, Chapel Hill, NC 27599-7295,

919/966-3036, fax: 919/966-3015

CME Guidelines

Each listing must include date, title, place, number of credit hours, fees, and name, address, and phone number of contact person. Send to: *NC Medical Journal*, Box 3910 DUMC, Durham, NC 27710, fax: 919/286-9219.

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REFERENCE:

1. Acute Pain Management Guidelines Panel. Acute Pain Management in Adults: Operative Procedures. Quick Reference Guide for Clinicians. AHCPR Pub. No 92-0019, pg. 12. Rockville, Md: Agency for Health Care Policy and Research, Public Health Service, U.S. Department of Health and Human Services.

BRIEF SUMMARY

PERCOCET' (Oxycodone (WARNING: may be habit forming) and Acetaminophen Tablets, USP)

INDICATIONS AND USAGE PERCOCET is indicated for the relief of moderate to moderately severe pain.

CONTRAINDICATIONS PERCOCET should not be administered to patients who are hypersensitive to oxycodone or acetaminophen.

WARNINGS Drug Dependence: Oxycodone can produce drug dependence of the morphine type and, therefore, has the potential for being abused. Psychic dependence, physical dependence and tolerance may develop upon repeated administration of PERCOCET, and it should be prescribed and administered with the same degree of caution appropriate to the use of other oral narcotic-containing medications. Like other narcotic-containing medications, PERCOCET is subject to the Federal Con-trolled Substances Act (Schedule II).

PRECAUTIONS General: Head Injury and Increased Intracranial Pressure: The respiratory depressant effects of narcotics and their capacity to elevate cerebrospinal fluid pressure may be markedly exaggerated in the presence of head injury, other intracranial lesions or a pre-existing increase in intracranial pressure. Furthermore, narcotics produce adverse reactions which may obscure the clinical course of patients with head injuries.

Acute Abdominal Conditions: The administration of PERCOCET or other narcotics may obscure the diagnosis or clinical course in patients with acute abdominal conditions.

Special Risk Patients: PERCOCET should be given with caution to certain patients such as the elderly or debilitated, and those with severe impairment of hepatic or renal function, hypothyroidism, Addison's disease, and prostatic hypertrophy or urethral stricture

Information for Patients Oxycodone may impair the mental and/or physical abilities required for the performance of potentially hazardous tasks such as driving a car or operating machinery. The patient using PERCOCET should be cautioned accordingly.

Drug Interactions: Patients receiving other narcotic analgesics, general anesthetics, phenothiazines, other tranquilizers, sedative-hypnotics or other CNS depressants (including alcohol) concomitantly with PERCOCET may exhibit an additive CNS depression.

When such combined therapy is contemplated, the dose of one or both agents should be

The use of MAO inhibitors or tricyclic antidepressants with oxycodone preparations may increase the effect of either the antidepressant or oxycodone.

The concurrent use of anticholinergics with narcotics may produce paralytic ileus.

Usage in Pregnancy Pregnancy Category C: Animal reproductive studies have not been conducted with PERCOCET. It is also not known whether PERCOCET can cause fetal harm when administered to a pregnant woman or can affect reproductive capacity. PERCOCET should not be given to a pregnant woman unless in the judgment of the physician, the potential benefits outweigh the possible hazards.

Nonteratogenic Effects: Use of narcotics during pregnancy may produce physical dependence in the neonate.

Labor and Delivery: As with all narcotics, administration of PERCOCET (oxycodone and acetaminophen tablets, USP) to the mother shortly before delivery may result in some degree of respiratory depression in the newborn and the mother, especially if higher doses are used

Nursing Mothers: It is not known whether PERCOCET is excreted in human milk. Because many drugs are excreted in human milk, caution should be exercised when PERCOCET is administered to a nursing woman.

Pediatric Use: Safety and effectiveness in children have not been established.

ADVERSE REACTIONS The most frequently observed adverse reactions include lightheadedness, dizziness, sedation, nausea and vomiting. These effects seem to be more prominent in ambulatory than in nonambulatory patients, and some of these adverse reactions may be alleviated if the patient lies down.

Other adverse reactions include euphoria, dysphoria, constipation, skin rash and pruritus. At higher doses, oxycodone has most of the disadvantages of morphine including respiratory depression.

DRUG ABUSE AND DEPENDENCE PERCOCET (oxycodone and acetaminophen) Tablets are a Schedule II controlled substance.

Oxycodone can produce drug dependence and has the potential for being abused (See WARNINGS.)

DVERDOSAGE Acetaminophen Signs and Symptoms: In acute acetaminophen overdosage, dose-dependent, potentially fatal hepatic necrosis is the most serious adverse effect. Renal tubular necrosis, hypoglycemic coma and thrombocytopenia may also occur.

In adults, hepatic toxicity has rarely been reported with acute overdoses of less than 10 grams and fatalities with less than 15 grams. Importantly, young children seem to be more resistant than adults to the hepatotoxic effect of an acetaminophen overdose. Despite this, the measures outlined below should be initiated in any adult or child suspected of having ingested an acetaminophen overdose.

Early symptoms following a potentially hepatotoxic overdose may include: nausea, vomiting, diaphoresis and general malaise. Clinical and laboratory evidence of hepatic toxicity may not be apparent until 48 to 72 hours post-ingestion.

Treatment: The stomach should be emptied promptly by lavage or by induction of emesis with syrup of ipecac. Patient's estimates of the quantity of a drug ingested are notoriously unreliable. Therefore, if an acetaminophen overdose is suspected, a serum acetaminophen assay should be obtained as early as possible, but no sooner than four hours following ingestion. Liver function studies should be obtained initially and repeated at 24-hour intervals

The antidote, N-acetylcysteine, should be administered as early as possible, preferably within 16 hours of the overdose ingestion for optimal results, but in any case, within 24 hours. Following recovery, there are no residual, structural, or functional hepatic ab-

Oxycodone Signs and Symptoms: Serious overdosage with oxycodone is characterized by respiratory depression (a decrease in respiratory rate and/or tidal volume, Cheyne-Stokes respiration, cyanosis), extreme somnolence progressing to stupor or coma, skeletal muscle flaccidity, cold and clammy skin, and sometimes bradycardia and hypotension. In severe overdosage, apnea, circulatory collapse, cardiac arrest and death may occur.

Treatment: Primary attention should be given to the reestablishment of adequate respiratory exchange through provision of a patent airway and the institution of assisted or controlled ventilation. The narcotic antagonist naloxone hydrochloride (Narcan®) is a specific antidote against respiratory depression which may result from overdosage or unusual sensitivity to narcotics, including oxycodone. Therefore, an appropriate dose of naloxone hydro-chloride (usual initial adult dose 0.4 mg to 2 mg) should be administered preferably by the intravenous route, and simultaneously with efforts at respiratory resuscitation (see package insert). Since the duration of action of oxycodone may exceed that of the antagonist, the patient should be kept under continued surveillance and repeated doses of the antagonist should be administered as needed to maintain adequate respiration.

An antagonist should not be administered in the absence of clinically significant respiratory or cardiovascular depression. Oxygen, intravenous fluids, vasopressors and other supportive measures should be employed as indicated.

Gastric emptying may be useful in removing unabsorbed drug.

DOSAGE AND ADMINISTRATION Dosage should be adjusted according to the severity of the pain and the response of the patient. It may occasionally be necessary to exceed the usual dosage recommended below in cases of more severe pain or in those patients who have become tolerant to the analgesic effect of narcotics. PERCOCET (oxycodone and acetaminophen tablets) is given orally. The usual adult dosage is one tablet every 6 hours as needed for pain.

HOW SUPPLIED PERCOCET (5 mg oxycodone hydrochloride and 325 mg acetaminophen tablets, USP), supplied as a white tablet, with one face scored and inscribed PERCOCET, and the other inscribed with DuPont name is available in: NDC 0590-0127-70

Bottles of 100 Bottles of 500 Hospital Blister Pack of 25 (in units of 100) Store at controlled room temperature

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A Look at Hypertension in North Carolina, 1991

Eugene J. Lengerich, VMD, MS, Ronna Jones, and Chanetta R. Washington, MPH

High blood pressure (hypertension) is a major risk factor for coronary heart disease and the single most important risk factor heart disease and stroke caused 34% (n = 19,697) of all deaths of North Carolina residents.¹ Compared to all other states and the District of Columbia, North Carolina had the 13th-highest age-adjusted rate of death (821/100,000), the 14th-highest rate due to coronary heart disease (209/100,000), and the thirdhighest rate due to stroke (63/100,000). These rates indicate that the prevention, detection, and treatment of high blood pressure is critically important to all health care providers in North Carolina.

Despite the present severity of hypertension-related diseases, the past two decades have revealed a notable and sustained decline in cardiovascular mortality: coronary heart disease mortality has decreased 50%; and stroke mortality, 57%.² This improvement has been attributed to increased awareness, detection, and treatment of hypertension. Across the US, hypertension treatment and control rates have improved dramatically.2

Unfortunately, even optimally treated hypertensive patients (those who attain a "normal" level of blood pressure under treatment) appear to have a higher risk of morbidity and mortality than normotensive subjects.² Therefore, the National Institutes of Health (NIH) now recognizes primary prevention of hypertension as an important and feasible strategy for reducing the impact of hypertension.³ This includes both general and targeted strategies to lessen the development of hypertension.

Dr. Lengerich and Ms. Jones are with the Office of Epidemiology and Ms. Washington is with the Disease Prevention Section, Division of Adult Health Promotion, NC Department of Environment, Health, and Natural Resources, P.O. Box 27687, Raleigh 27611-7687.

A New Definition of Hypertension

for cerebrovascular disease (stroke). During 1991, coronary **Recently, the NIH proposed a new classification of adult blood pressure. The cutoff for high blood pressure was lowered from 140/90 mm Hg to 130/85 mm Hg (Table 1, at right)² because of evidence that even "borderline" high blood pressure increases the risk of cardiovascular disease. In addition, the traditional terms "mild hypertension" and "moderate hypertension" are misnomers that elicit a sense of complacency and fail to convey the cardiovascular risk of high blood pressure.

> Of course, detection and recognition of hypertension are the first steps in preventing hypertensive damage to the retina, kidney, and central and peripheral cardiovascular systems. Unfortunately, detection may be delayed because hypertension produces few or no symptoms. Health care providers must be alert to the factors that increase the likelihood of hypertension and use the most recently revised definition of hypertension.

NC Behavioral Risk Factor Surveillance System

In this report we describe the prevalence among adult North Carolinians of: 1) risk factors for hypertension, 2) how often North Carolinians have their blood pressure checked, 3) their awareness of prior diagnosis of hypertension, and 4) their use of antihypertensive medications in 1991 (Table 2, at right). Data were collected by the North Carolina Behavioral Risk Factor Surveillance System (BRFSS), a random telephone survey weighted to represent the population of North Carolinians at least 18 years of age. This monthly survey is funded by the Centers for Disease Control and Prevention and conducted in North Carolina by the Division of Adult Health Promotion, based in Raleigh. During 1991, BRFSS collected information from 1,897 North Carolinians; 52% were female and 20%, black.

Prevalence of Factors Associated with Hypertension. The NIH has identified four modifiable risk factors, the presence of which substantially increase the risk of developing hypertension; obesity, sedentary lifestyle, excessive alcohol consumption, and high salt intake. During 1991, 26% of adult North Carolinians reported themselves as being overweight (that is, weighing at least 120% of ideal body weight as determined by the 1959 Metropolitan height-weight tables). Sixtyone percent reported a sedentary lifestyle (that is, they exercise for less than 20 minutes three times per weck). Of respondents, 3% said they consumed 60 or more alcoholic drinks per month. Statewide data on the prevalence of high salt intake during 1991 were not available.

Frequency of Blood Pressure Measurement. During 1991, 96% of adult North Carolinians said that they had had their blood pressure measured by a health professional during the past two years; 93%, during the past year (Table 3, next page). Across the nation, more than 90% of respondents report having had their blood pressure checked within the past two years.⁴

Self-Awareness of Hypertension. During 1991, 18% of adult North Carolinians self-reported that they had high blood pressure (Table 3, next page). The prevalence among females and whites was approximately equal to the prevalence among males and blacks, respectively. Prevalence increased with age; approximately one-third of those aged 65 or more were aware that they had hyper-

tension. Respondents who earned less than \$10,000 per year reported a higher prevalence than those earning more.

North Carolinians reported the third-lowest prevalence (18%) of hypertension awareness in the nation; only residents of New Mexico (15%) and Virginia (16%) were lower. The national median was 21% (range, 15%-30%), and the prevalences reported by states bordering NC were: Virginia, 16%; Tennessee, 23%; Georgia, 21%; and South Carolina, 24%.

Use of Antihypertensive Medication. Of those respondents who had been told they had hypertension, 63% reported current treatment for it (Table 3); substantially more women (76%) than men (50%) said they were using prescription medicines for hypertension. Use of antihypertensive medication increased with age and was greatest for those with the lowest annual income.

Table 1. Classification of blood pressure for adults age 18 and older*

Category*	Systolic (mm Hg)	Diastolic (mm Hg)
Normal	<130	<85
High normal	130-139	85-89
Hypertensive		
Stage 1 (mild)	140-159	90-99
Stage 2 (moderate)	160-179	100-109
Stage 3 (severe)	180-209	110-119
Stage 4 (very severe)	≥210	≥120

* Blood pressure measured when the subject is not taking antihypertensive drugs and not acutely ill. If systolic and diastolic pressures fall into different categories, the higher category is used for classification. For instance, 160/92 mm Hg is classified as Stage 2, and 180/120 mm Hg as Stage 4. Isolated systolic hypertension (ISH), defined as SBP≥140 mm Hg and DBP<90 mm Hg, is staged similarly (for example, 170/85 mm Hg is defined as Stage 2 ISH). Clinicians are also asked to specify the presence or absence of target-organ disease and additional risk factors. Thus a patient with diabetes, a blood pressure of 142/94 mm Hg, and left ventricular hypertrophy is classified as "Stage 1 hypertension with target-organ disease (left ventricular hypertrophy) and with another major risk factor (diabetes)." This specificity is important for risk classification and management.

Source: The Fifth Report of the Joint National Committee on Detection, Evaluation and Treatment of High Blood Pressure. National High Blood Pressure Education Program. National Heart, Lung and Blood Institute. NIH Publication No. 93-1088.

Table 2. Questions related to blood pressure and hypertension in Behavioral Risk Factor Surveillance System, NC, 1991

Blood pressure check: About how long has it been since you last had your blood pressure taken by a doctor, nurse, or other health professional?

Hypertension awareness: Have you ever been told by doctor, nurse, or other health professional that you have high blood pressure?

Antihypertensive medication: Is any medicine currently prescribed for your high blood pressure?

Discussion and Recommendations

Compared to other states, North Carolina has high rates of death from coronary heart disease and stroke. But during 1991, only 18% of adult North Carolinians reported ever being told by a health professional that they had hypertension and of those, only 63% were currently using an antihypertensive medication. In addition, the majority of North Carolinians reported at least one modifiable risk factor related to the development of hypertension.

Despite the fact that almost all respondents reported having their blood pressure checked within the past two years, the BRFSS estimate (18%) should certainly not be considered the true prevalence of hypertension for several reasons. First, self-report surveys underestimate the prevalence of hypertension.

Bowlin et al⁵ found that the BRFSS estimate was 43% lower than the actual prevalence of hypertension (defined as a blood pressure ≥140/90 mm Hg on multiple readings) in a predominantly (99%) white population in New York. Other studies estimate the underreporting of hypertension by surveys to be 46% in the US as a whole, 628% in Maryland, 7 and 26% in Edgecombe County, NC.8

Secondly, we found the prevalence of hypertension awareness in whites to be approximately equivalent to that of blacks despite the fact that hypertension is more prevalent in blacks (38%) than in whites (29%).6 Thirdly, North Carolinians reported the third-lowest prevalence of hypertension awareness in the nation despite elevated death rates due to coronary heart disease and stroke. Fourthly, the new blood pressure threshold proposed by the NIH will reclassify many individuals as hypertensive, many of whom are not yet aware of this. When the previous diagnostic threshold for hypertension—160/95 mm Hg was lowered to 140/90 mm Hg, the prevalence of "hypertension"

in the US increased by an estimated 27%.⁶ The sum of these factors means that tens of thousands of North Carolinians were hypertensive in 1991 but were unaware of it.

Income

(\$/year)

Health Objectives for the Year 2000

The US has defined health objectives for the year 2000, three of which relate directly to hypertension. Progress by North Carolina will be important to reaching national goals. One objective is to "increase to at least 90% the proportion of adults who have had their blood pressure measured within the preceding two years and can state whether it was normal or high." If we assume that our BRFSS data validly address this objective (which has not been directly tested), North Carolina already meets the goal.

Another objective is to "increase to at least 90% the proportion of people with high blood pressure who are taking action to help control their blood pressure." Unless many North Carolinians are using nonpharmacologic treatments or the current rate of taking antihypertensive medication increases dramatically, North Carolina will not meet this objective. A final objective is to "increase to at least 50% the proportion of

Table 3. Prevalence of factors associated with hypertension in NC, 1991 BP Check* HTN† Treatment¹ Total 96% 18% 63% Gender Male 95% 19% 50% Female 97% 17% 76% Age (years) 18-24 96% 6% 25% 25-34 95% 8% 25% 35-44 96% 13% 48% 45-54 96% 27% 57% 55-64 97% 30% 76% 65+ 99% 34% 84% White Race 97% 18% 61% Black 95% 18% 67% Household ≤10.000 95% 27% 83%

* Percentage who had blood pressure checked within past two years by a health professional

10-14,999

15-19,999

20-24,999

25-34,999

35-49,999

≥50,000

- † Percentage aware of ever having been told of high blood pressure
- Percentage aware of having high blood pressure who reported current antihypertensive medication

Note: Data from the Behavioral Risk Factor Surveillance System Survey of NC, 1991

93%

96%

97%

94%

98%

99%

people with high blood pressure whose blood pressure is under control." Currently, North Carolina does not have a populationbased, surveillance system to monitor compliance with this objective.

17%

19%

17%

14%

14%

16%

58%

41%

58%

48%

45%

47%

In addition to the national goals, North Carolina has adopted its own health objectives for the year 2000. One of these is to reduce by 25% the rates of death due to heart disease and stroke. To meet this challenge, North Carolina will need to develop and implement a strategic plan for modifying risk factors and for treating hypertension and the complications of hypertension. Of course, lowering high blood pressure is only one part of the overall plan. Modifying risk factors such as sedentary lifestyle and obesity will help reduce hypertension as well as other cardiovascular diseases such as atherosclerosis.

We need to develop and implement a comprehensive strategic plan to prevent and control cardiovascular disease. We urge that North Carolina and its health care providers:

Develop and enhance general and targeted primary prevention efforts to be implemented in traditional (health care clinics and doctor's offices) and nontraditional (worksite) settings. These efforts should encourage participation of both local health care providers and community organizations.²

- Encourage and facilitate adult North Carolinians to have their blood pressure checked at least biennially.
- Encourage and assist health care providers in helping hypertensive patients prevent targetorgan disease.
- Evaluate and expand statewide surveillance capacity to monitor known factors associated with hypertension, including awareness and control of high blood pressure.

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Health Watch

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Alzheimer's Disease

A NEW ERA: ALZHEIMER'S IS BECOMING MANAGEABLE Fred H. Allen Jr, MD

This "Health Watch" is written as a simulated conversation between a physician and the family member of an individual suffering from Alzheimer's disease. It is the first of a two-part examination of Alzheimer's disease from a patient and family member perspective.

FAMILY MEMBER, MRS. FRANKLIN: Doctor, on our first visit about my mother's memory loss and personality change, you mentioned Alzheimer's disease and ordered some tests. We're confused. Please help us understand Alzheimer's disease, and tell us the best way to care for mother.

What is Alzheimer's?

DOCTOR: Mrs. Franklin, Alzheimer's disease is a demen-

A neurologist, Dr. Fred H. Allen, Jr, is a Clinical Professor of Medicine at the University of North Carolina, a Consulting Associate in Neurology at Duke University Medical Center, and Attending in the Division of Neurology at Carolina's Medical Center, Charlotte, and the Director of the Metrolina Memory Center, Charlotte. He is also on the Board of Directors of the Alzheimer's Association, Southern Piedmont Chapter.

tia, with poor intellectual function due to brain disease. There is severely impaired memory and reasoning ability, but other tools of intellect such as orientation and judgment are also important losses. On your last visit, depression, drug problems, and medical conditions were ruled out. About 15% of dementias are due to treatable conditions such as vitamin B12 deficiency, kidney failure and thyroid problems — we have checked blood tests on these and a number of other medically treatable causes. Progressive disorders with physical findings like Parkinson's disease show predominantly delayed mental processing and slow use of old stored information. We have checked on these and on multiple strokes, tumors, clots, and treatable blocks using the CT scan and it showed no abnormality. Other tests are unlikely to show anything in the face of this steadily progressive three year history which goes along with a growing and gradual loss of intellectual function. This has bothered her daily home life and cost her her job, and she is now withdrawing from many of her interests. Since she is alert and not using any sedative drugs, her problems with poor judgment, especially with money, of finding proper words, and making decisions, indicate a widespread brain malfunction. The old memories are good, but newer recent memories slip away quickly so she burns food on the stove, forgets appointments, mixes up the grandchildren, and asks the same question over and over. She feels and acts confused at times, and when she doesn't remember the real answers, she fills in with incorrect information. I know that when she speaks of her deceased parents as if they were still alive, it must trouble you quite a bit.

All these facts point to the progressive disease called Alzheimer's which accounts for over 60% of dementia.

MRS. FRANKLIN: I see. But are you sure this isn't just normal aging or senility?

How Alzheimer's differs from normal aging

DOCTOR: We store memories, information, and life experiences, and we bring them into our thinking, retrieving them when needed. With maturity we can understand complex issues, learn and store large amounts of material and be creative under many circumstances. With normal aging the speed of calling up information and solving problems diminishes. The effects of hearing and visual problems, medicines for other conditions and physical illness, and particularly sedative drugs, may diminish our use or recall of the information. But this usually is not like your mother's progressively deteriorating pattern.

Stroke and other injuries cause abrupt changes. However, the steady loss of intellectual capacity seen here indicates progressively deteriorating memory cells and loss of memory chemicals. She did poorly on the standardized memory test, the Mini Mental State Examination (MMSE), where she could not solve a simple math problem nor remember the three words we gave her. With other losses giving her a score of only 14 out of a possible 30 memory items, we can predict that she has lost enough memory capacity that driving a car, cooking without supervision, and making health decisions, will soon be a problem. Living alone, she may soon become a danger to herself, her home, and her finances. This is not normal aging. There is no such thing as senility. Also in your mother's clear case, she does not need a neuropsychologist to do further memory tests. She shows no signs of depression, and does not need psychiatric care.

MRS. FRANKLIN: It sounds like an overwhelming problem. Are there many people like this.

A serious issue

DOCTOR: Yes, that's a good question. Alzheimer's Disease increases in frequency with age, affecting 1% of the population younger than 65, at least 10% over 65, and as many as 50% of those over 85. Older age groups are increasing, 85 being the fastest growing one. Four million people currently have Alzheimer's Disease, and by the year 2050 that number may be as many as fourteen million. The management of this disorder is certainly expensive with home care, lost work, supervisory needs, and nursing home

care — 20% are in nursing homes with costs which range from \$20,000 to \$35,000 a year. Half of the nursing home beds are filled with Alzheimer patients.

MRS. FRANKLIN: What can we do, Doctor?

Answers are found

DOCTOR: Your mother experiences frustrations, failures in familiar tasks, falls, and intellectual limitations. The usual things just aren't working. Recent memory shortages, and a severe problem switching her attention rapidly from idea to idea, require both understanding and a structured life around her. This will reduce the many rapid choices that must be made with activities like shopping, planning menus, driving the car, and the like. She needs guidance. But arguing, correcting, "telling" or "convincing" her should be avoided in favor of distraction and changing the subject. This will prevent conflicts by limiting and structuring her surroundings and conversations. For safety and to avoid serious problems, observe her for burning food, driving difficulties, potential falls, and wandering problems.

Behavior changes such as agitation, confusion, and hallucinations occur, and are usually better managed without medication. Mind-altering drugs worsen the memory and concentration and cause confusion. Also watch for symptoms such as agitation or incontinence which may be due to a urinary tract infection or sedative drugs. By adapting our conversation to adjust to her memory problems, and using a calm approach with reassurance, we often soothe patients better than sedative medicine.

Help from support groups

DOCTOR: Also, the pressures on your father as caregiver will require family support. And information for friends is available through the Alzheimer's Association. Families learn of other caregivers' experiences through the Family Support Groups, and find helpful literature from the Alzheimer's Chapters. Information on the importance and location of day care and respite services may frequently be helpful. The larger community support of the caregiver can lessen burnout as is described in the book "The Thirty-Six Hour Day" and in booklets available through the chapters and Family Support Groups.

Home care services have dramatically increased, and 80% of AD patients remain at home. In some cases, age, the disorder, poor family support, caregiver stress, and patient behaviors may require and benefit from the structured nursing home care. In all situations, learning to handle one clear point at a time, using subject changing and distraction but not argument, and enjoying those remaining features of our loved one's vast life experiences (those in remote memory), lead to a happier life style.

MRS. FRANKLIN: You've talked about these care helps, but is medical treatment possible?

Medically speaking

DOCTOR: Alzheimer's Disease is now becoming manageable. In the recent past, we could only treat the behavior with drugs which subdue memory or restraints which stress the patient. We have learned through research about successful memory interaction with the patient, and about treatments other than medication. Sometimes a drug may be briefly necessary for depression, agitation, hostility, sleep, or seeing things. These are best used on a short term basis to avoid making behavior responses more complex, and are rarely helpful for long periods of time.

We know more about brain chemistry in Alzheimer's disease. Amyloid, a protein located in our memory centers, increases with aging, and is generally more pronounced in Alzheimer's. Age-related changes like plaques and tangles are often seen more frequently in the brains of Alzheimer's patients. Research on these is helping us understand the disease.

The brain chemical acetylcholine, very important in making new memories, is deficient due to deterioration of the cells responsible for memory. Cognex is the first and only marketed medicine for memory loss. It was studied in the mild-to-moderate range of Alzheimer's disease, and it is now available for all primary care, neurological, and psychiatric physicians to prescribe. Cognex (Tacrine) is a medicine which improves the work of this brain chemical. This is probably the way it improves memory. (Clinical drug research is a prominent feature of many medical centers and most drug companies. These are mostly studies about the diagnosis or treatment of memory problems.)

The goal of other research is protection of the deteriorating nerve cells which cause Alzheimer's Disease. The genetic discoveries of the last few years seem to point the way toward early detection before we get symptoms, and possibly to designing drugs which postpone Alzheimer's in susceptible people. The recent important genetic developments, especially at Duke University, are very hopeful signs for early dramatic progress.

MRS. FRANKLIN: What you are saying sounds complicated but very hopeful for the future.

How Alzheimer's is becoming manageable.

DOCTOR: That's true. These major developments, with the increasing knowledge of direct behavior management, point hopefully in the next few years to a new era of diagnosis and management of Alzheimer's Disease. By the year 2050 today's four million Alzheimer's patients which cost \$90 billion dollars, will number fourteen million victims. We, the government, will not be able to afford such a direct expenditure.

More cost saving measures such as volunteer approaches in the communities, churches, and families, are becoming necessary. Joining the Alzheimer's Association, sponsoring fund-raising, connecting with Family Support Groups, and helping us to return to community and family values as in our past — these are methods to assure good care in the future. And, Mrs. Franklin, these genetic studies which show strong inheritance patterns, also point to early prospects of treatment which may postpone the beginning of symptoms for decades to come. You can see now why you have reason to aid the spread of public knowledge, to accept the challenge to promote and support research, such as Duke's dramatic genetic advances as they unveil the secrets of the disease; and to encourage participation in the proper use of a treatment drug through clinical research like that which brought us this first-of-a-kind drug, Cognex. All of these are options adding to the statement that Alzheimer's Disease is becoming manageable.

Hope for a better life

MRS. FRANKLIN: I'll tell my family about these ideas. And I'll ask mother's doctor to start mother on Cognex or on a clinical trial drug. I'll need the help of the Family Support Group you told me about. I see that I need more conversations and ideas on how to help mother. But what a relief to know that there is hope for a better life for her than I had been fearing! There have been a lot of advances that leave me hopeful about her future — and mine.

DOCTOR: Good. I'd like to see you both in three months to hear of your progress.



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res, I would like the following information:	
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☐ The Alzheimer's Association Chapters that serve North Carolina	1
☐ Contact with nearby Family Support Groups	
☐ Information on the only marketed Memory Drug (Cognex)	
☐ Information on Alzheimers Disease Drug Research	
	T .

☐ Please forward my name to the Alzhemer's Association for further contact. (Caregiver information, services, training, memorial gifts.)



©AMIRIAN'S FINE ART & FRAMING OR ACOP J. AMIRIAN

Harper House by A.J. Amirian Bentonville, North Carolina — March 19, 1865

The sleeping village of Bentonville shook early Sunday morning, as two armies collided, just a mile up the Goldsboro Road from th Harper's farmhouse. The Harper's, with their nine children, found themselves caught in the middle of the last major battle of the Wabetween the States.

General Sherman's overconfident Army of 58,000 veterans had marched for four months without serious opposition through Georgi and South Carolina implementing Sherman's theory of "Total War." In desperate need of food and clothing, they were anxious to mee the supply train in Goldsboro, now just twenty miles away.

Upon Sherman's entry into North Carolina, in early March 1865 — General Johnston accepted his simple yet seemingly impossible assignment to — STOP SHERMAN! Hastily assembling fragments of Hood's Army of Tennessee, Hoke's Division of The Army of Norther Virginia, Artillery Regiments withdrawn from Garrison Duty, scattered detachments from military departments along the Atlantic coas and three regiments from the North Carolina Junior Reserves. 23,000 Confederates under the command of eleven famous Generals, thoug severely outnumbered, were equally determined not to let Sherman's march through the South go unanswered.

As the battle mounted through the day, so did the casualties. Sherman's 14th Corp. seized the Harper's House for use as a hospita The Family was forced upstairs, interior doors were laid across barrels to create surgical tables, while tents were pitched outside for add tional facilities.

Among the wounded, some dragged themselves to the safety of the hospital, others were helped by friends. On the battlefield, as dus faded in darkness the assaults subsided, ambulances and litter parties worked frantically to rescue the seriously injured, and the dead wer hastily buried

Events at the Harper House on March 19, 1865 were painstakingly re-created by Artist A. J. Amirian. Over an 18 month period, exter sive research and consultation was conducted, dozens of sketches and drawings were made from 600 photographs taken for this work, a well as a three day camp-out on location, by the artist, with re-enactors. The product is a magnificent oil on canvas measuring $36'' \times 56$ from which these fine art prints were made possible.

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A Change in Death Registration

How to Fill Out the Amended North Carolina Death Certificate

J. Newton MacCormack, MD, MPH, and A. Torrey McLean, MA

Morbidity and mortality statistics are essential for health program planning and evaluation. Except for communicable disease surveillance, systems for recording morbidity (such as the occupational disease reporting system initiated in January 1994, and the North Carolina Cancer Registry) are of relatively recent vintage. On the other hand, mortality data have been collected for considerably longer. Statewide death registration in North Carolina began in 1913, at a time when the leading cause of death was infectious disease. With a few major exceptions, infectious diseases have been checked as leading causes of death. Now heart disease, cancer, and stroke are the leading causes in the United States and North Carolina.¹

The Role of the Attending Physician

The physician is the hub upon which any system of disease surveillance turns, be it reporting of patients with communicable disease of public health significance or the proper certification of cause of death on a death certificate. The importance of timely and accurate morbidity reporting of measles cases or lead poisoning seem intuitively clear, but the value of timely and accurate completion of death certificates is easily underestimated. The key elements in the attending physician's role are timeliness and accuracy.

Timeliness in completing a patient's death certificate is of primary importance because of the need for prompt burial or other disposition of the body, and for resolution of life insurance claims and other matters of estate settlement. Accuracy in the attribution of cause(s) of death relates to these needs as well, but there are other, more far-reaching societal needs that may not be readily apparent.

Dr. MacCormack is State Epidemiologist and Chief, General Communicable Disease Control Section, and Mr. McLean is State Registrar and Chief, Vital Records Section, North Carolina Department of Environment, Health, and Natural Resources, P.O. Box 27687, Raleigh 27611-7687.

Immediate, Underlying, and Contributory Cause of Death

Physicians completing a death certificate are asked, in Part I of the Cause of Death section, to list the *immediate* cause of death and the pathologic conditions leading up to that cause. They are also asked to estimate the time each condition existed prior to death (Fig. 1, at right). The last cause to be listed in this section should represent what the physician considers to be the *underlying* cause—the disease or injury that initiated the train of morbid events leading to death. For a fatal injury, the circumstances of the event producing the injury are important entries. Part II of this section of the certificate inquires about other significant conditions *contributing* to the death but not necessarily resulting in any of the causes listed in Part I.

Using a system of algorithms designed by the National Center for Health Statistics to standardize attribution of cause of death, the Vital Records Section of the North Carolina Department of Environment, Health, and Natural Resources determines an *underlying* cause for each death certificate submitted by local registrars across the state. In addition, each cause listed by a physician on each certificate is allocated a code number that allows retrieval for statistical purposes. This is an important advance over the system we used just a decade or two ago when only the underlying cause—and only one per death certificate—was coded.

As Kircher notes, there are a number of inherent shortcomings in any death registration system. These include the current state of medical knowledge at the time death occurs, incompleteness of the information available at the time of death (a plea for more autopsies), imprecision in completion of certificates by individual physicians, and faults in the way the cause of death registration system classifies underlying causes.²

The Contributory Role of Substance Abuse

There is little doubt that death certificate statistics significantly underestimate the number of substance abuse-related deaths in

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Fig 1: Current North Carolina death certificate

this country. One study of the death certificates of 246 known alcoholics found that only 36% mentioned alcoholism or any alcohol-related condition. As for deaths due to "hard" drug use, a study comparing cocaine-related deaths in 25 metropolitan areas from 1983 through 1988 revealed that 75% more deaths were reported via the federally funded Drug Abuse Warning Network (DAWN) than through official death certificates. But the greatest discrepancies seem to lie with tobacco-related death statistics. Cigarette smoking is estimated to have accounted for about 434,000 excess deaths in the US in 1988, 5 yet

an exceedingly small (although fortunately increasing) proportion of death certificates note tobacco use or dependence as contributing to the cause of death.

In 1978 the ninth revision of the World Health Organization's International Classification of Diseases (ICD) added a diagnostic code (305.1) for diseases and deaths caused by "tobacco dependence." This code was recognized by the American Psychiatric Association in its 1980 edition of the Diagnostic and Statistical Manual of Mental Disorders. Some experts argue that the addictive properties of tobacco exceed

		unes, or complications that caused the death. Do not enter the mode obacco, alcohol, or drug use. List only one cause on each line. (PRIN)		Approximate Interval Between Onsel and Death				
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Fig 2: Revised "Cause of Death" section of NC death certificate

those of alcohol,⁶ which has led to the establishment of this diagnostic entity. Despite these concerns, in 1991, tobacco dependence was coded as the underlying cause of only 193 deaths in the entire US. That year there were 3,862 deaths from lung cancer in North Carolina alone! In 1979, causes of death classifiable to code 305.1 were listed on only 54 NC death certificates; by 1992 this number had increased to 753 (NC State Center for Health and Environmental Statistics, unpublished data). But tobacco dependency was actually coded as the *underlying* cause for only two deaths in 1979 and 10 in 1992.⁷

Lest we think that the problem is solely a result of physicians completely ignoring tobacco dependence as a cause of death, we want to point out that current coding algorithms allow code 305.1 to become the *underlying* cause of death only when the other causes listed on a death certificate are vague or nonspecific. For example, if a physician lists "respiratory failure" as immediate cause, followed sequentially by "bronchogenic carcinoma of the lung" and "tobacco addiction," the "official" underlying cause will become bronchogenic carcinoma of the lung. However, tobacco addiction, coded as an "other" cause, will still be retrievable should someone wish to count all deaths from carcinoma of the lung—or any other disorder—for which code 305.1 was also listed as a cause.

The Need for Accurate Information About Substance Abuse

Because the data are so important, considerable attention has been paid to devising ways to improve the accuracy with which causes of death are listed. As noted above, periodic revisions of the *ICD* seek to keep abreast of new diseases and knowledge about disease etiology. Changes also occur, by design, in the death certificate used in each state. The North Carolina certificate was recently amended in an attempt to improve the accuracy of data related to alcohol, drug, and tobacco use to cause of death.

At the request of the North Carolina Medical Society's Tobacco Control Task Force, the state's death certificate form now includes prompts to remind the attending physician to consider whether the use of alcohol, tobacco, or drugs contributed to the death (Fig. 2, above). Several other states have also altered their death certificates along these lines, and the National Center for Health Statistics will recommend that this issue be addressed at the next revision of the standard US death certificate.

Readers should note that all deaths due to injury (whether intentional or unintentional) and those that occur under suspicious, unusual, or unnatural circumstances must be reported to and certified by a medical examiner. This requirement obviously applies to some deaths that might be attributed to alcohol or other chemical substance abuse. The inclusion of the new prompt on the death certificate form used for "natural" death does not change this reporting requirement.

To paraphrase Pollin and Ravenholt, attending physicians can render yet another important service to society by recording whether tobacco, alcohol, or drug dependence was a cause of death whenever the facts so indicate. In this way, we can better document the importance of these conditions as medical and societal problems.

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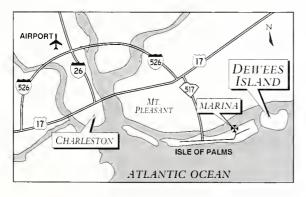
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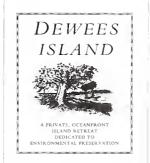
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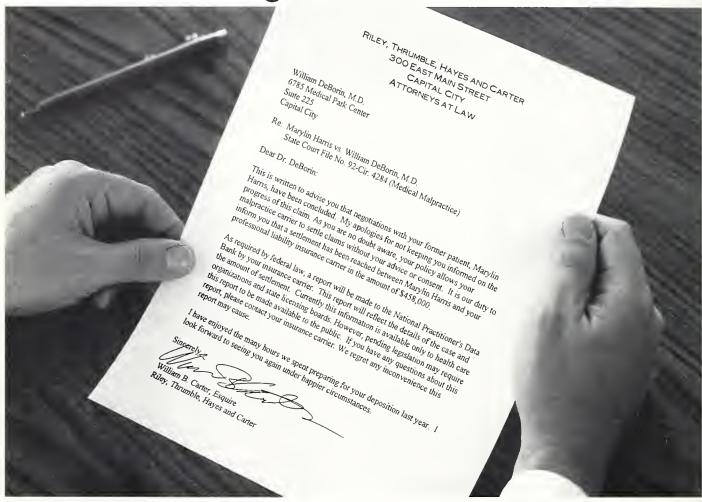
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The Isolation of Illness New

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Prolems e his other had a ment red" book cord rmal after te its one.

During his ordeal Price learned about the isolation of illness, about how physicians often are inadequate resources to their patients, and how it is possible for a distinguished professor to enter the hospital at his own university and be quickly swallowed up and depersonalized—"a piece of meat" one of my physician friends once put it after his own descent into the maw of the hospital routine.

Price knows he owes his survival to the work of doctors of "superb craft and technical judgment" (the book is dedicated to, among others, his neurosurgeon, Allan Friedman), but he offers a scathing assessment of several other physicians who never consoled or encouraged him and made Price wonder if there is a deficiency in the training of physicians for "humane relations...for complex long-range interaction with damaged creatures." Why, Price asks, should a basic display of human concern require postgraduate instruction in the first place?

It is a question other writers have asked in their memoirs of illness. In Borrowed Time, Paul Monette talks about weathering the "brute intrusion of medicine men," and in Darkness Visible, an account of his bout with depression, William Styron recalls how "an insouciant doctor had prescribed Ativan as a bedtime aid, telling me airily that I could take it as casually as aspirin."

The message in all these accounts is that doctors are good at the big things—heroic surgery or the nuanced management of complicated metabolic problems and the like. Where many of them fail is as listeners and communicators, as willing, unhurried participants in the unfolding of every "case," the outcome of which depends as much on the doctor's words and attentive ear as on his or her skill of hand or choice of antibiotics. In the end, doctors face an impossible task, which Price more or less acknowledges in his advice to others with chronic illness: "You're in your present calamity alone...Nobody—least of all a doctor—can rescue you now...."

This is not a conclusion hastily or easily arrived at; indeed, at the beginning of his narrative, Price describes how he refrained from asking his doctors questions: "Don't make them tell you, and it may not happen." "Don't probe for news. News will sink you fast and—anyhow—what do they know?"

With a Little Knowledge

From his initial embrace of not-knowing, Price made a long emotional journey to knowledge and a clear-eyed acceptance of the limits — not so much of what doctors know, but of how little they can sometimes do—and of how much patients must learn to do for themselves if they are to survive. In Price's case, it was a monumental effort, demanding the abandonment of his old self and a wrenching metamorphosis into new life.

Even so, Price argues, his doctors could have made the transformation less difficult. He resents having been told his diagnosis in a crowded corridor in the x-ray department, rather than in his own room, where there would have been privacy and time for questions. He believes he needlessly endured years of pain and the side effects of narcotics because his doctors, including those in a pain clinic, did not make him aware of biofeedback and hypnosis, which, when he finally learned about them, made his pain bearable and freed him from the mind-numbing influence of opiates.

And he faults his doctors for not being attentive to "little" things like swollen legs, fragile skin, and mental fluctuations that discomfited him.

Commentary—by Reynolds Price

Professor Price is James B. Duke Professor, Department of English, Duke University, Durham.

At the very start of my publishing career, 32 years ago—when I began to receive the kinds of wildly contradictory reviews that are the lot of any writer who tries to work in the *quick* of human experience and feeling—a wise English friend warned me against attempting to argue with critics. He quoted Prime Minister Disraeli's famous advice to "Never apologize, never explain." The advice impressed me as an excellent guideline for writers, if not for ethical human beings; and I've observed it without exception ever since.

When the editor of the North Carolina Medical Journal invited me to read and respond to the two reviews he'd received of my recent memoir of cancer survival, I agreed at least to read them. And now that I've done so, I can easily respond with a strong sense of gratitude for the generosity and care of both reviewers. Since—in the course of recounting honestly my long stay in the hands of neurologists, neurosurgeons, and oncologists—I was compelled to offer a fair amount of stern criticism (as well as a good deal of praise), I expected to receive at least a big share of rejection from those doctors who read the book.

In fact it has constituted a major surprise that now, more than five months after publication, I've still to receive such rejection. I've not only had these two detailed responses from Dr. Porter and Dr. Stead—since my days as a Duke undergraduate in the 1950s, I've known of Eugene Stead as a mythical figure of excellence and probity—I've also received other positive reviews from physicians and a number of positive letters from doctors across the country.

With some trepidation at the risk of jarring my luck, I can even add that till now I've received no single bad review or contrary letter from a physician (and just in case I have jinxed my luck by the mention, I'll throw in the fact that a majority of the hundreds of letters and phone calls I've received from fellow trauma survivors apprise me of their own individual harrowing experiences with unhelpful, or worse, caregivers). In a way that I hadn't at all expected, when I set out to describe the first decade of one fairly normal cancer patient's odyssey, I seem to have touched a national nerve (the book is now in its fifth printing). By way of a tentative response to the first five months of the book's life, I'd offer at least this much—the United States is literally bursting with intelligent and sensitive men and women (I've heard from no children) who are grateful for the technical skill of their therapists but who harbor reservations about what they sense as a general deterioration in the level of humane intercourse which Americans may expect once they enter a doctor's office or, especially, a sizable hospital.

In the shortest form possible, I'd state my deduction in the form of a strong guess—the guess that a large proportion of trauma survivors in this country now feel immensely lonely in their ordeals; and although I well know that a normally busy physician can hardly be expected or urged to become emotionally intimate with dozens of patients, I do suspect—and I do recall from my childhood experience with the general practitioners of the 1930s and 1940s—that a great deal of improvement could still be effected if all physicians approached all patients with at least a single iron ground rule: This person, my patient, whatever signs he or she presents, is a human being at least as intelligent and vulnerable as I.

The Salvation of Inner Strength

Price found strength in friends, music, books, and most of all in an enviable religious faith, a belief that God "takes close note" of some of His creatures. He describes what he believes to have been a real encounter—not a dream—with Jesus, who told him that his sins were forgiven and he was cured. Another time, in the middle of the night, he addressed the ceiling with a despairing question: "How much more do I take?" Back came the disembodied answer, "thoroughly real and near at hand...'More'." However difficult it may be to credit such religious experiences, they further reinforce the importance of

patients' inner resources. Experienced physicians know that the will to live, the strength to forge a new life and let go of an old one, are as important as antibiotics and steroids. The good physician does all he or she can to help the patient mobilize those resources.

In A Whole New Life Reynolds Price communicates this message clearly, in language both precise and rich with the imagery that has earned him so wide a literary reputation. For those who have faced the bewildering isolation and distress of illness, it will be a source of wisdom and comfort. For the doctors, nurses, and medical students whose privilege it is to serve them, it is must reading.

Review—by Eugene A. Stead, Jr., MD

Dr. Stead served as Editor of the Journal from 1983-1992. He was chairman of the Department of Medicine at Duke University Medical Center in Durham from 1946-1967 and is Emeritus Professor there.

Reynolds Price, a talented and imaginative writer of novels, plays, and poems, gives us his story of the destruction of the Reynolds Price of 51 years and the creation of the new Reynolds Price. The creation of this new person—a productive, creative paraplegic able to control the pain produced by nerves imbedded in tissue scarred by radiation; a person able to enjoy working and living with minimal medication—took four years.

The staff of Duke Hospital knew that the 51-year-old man had a tumor. The neurosurgeon determined that the tumor in the spinal cord could not be resected. The pathologist said that it was an aggressive tumor with poor prognosis. Radiation was the only hope. The radiation therapy was skillfully planned and executed without mishap. Damage was confined to the skin, the tumor, the nerve cells in the spinal cord. Other vital organs were successfully shielded. The therapy produced scarring and cyst formation in the tumor and slowed its growth, but did not eradicate it or reduce its size.

Several years later, enough improvements had occurred in x-ray imaging and surgical instrumentation to allow resection of the tumor. The road ahead was brighter but the pain had to be controlled before a new productive life could emerge.

The world would be better if there were more Reynolds Prices. The practice of medicine would be easier if these other Prices did not develop this type of tumor. But in any case, the care of those who develop such tumors needs to vary greatly depending on the structure and function of each patient's brain.

Brain Sorting

I doubt that persons treating the disease knew the history of Price's boyhood, of his relations with his father and mother, of their slow, painful deaths. I doubt they knew of his distrust of doctors, his fear of asking them questions, his desire to determine his own fate, his vivid imagination—and this resulted in intermittent and unsatisfactory communication with his doctors. The brains of a hundred persons selected at random will show much greater variation in structure and function than a hundred tumors selected precisely because of the similarities of their gross and histological characteristics. The treatment of the disease can easily be standardized. The treatment of the patient with the disease cannot.

The brain of Reynolds Price at age 51 had a structure determined, as always, by a combination of genetic and environmental factors. Irish Protestants and Irish Catholics have their brains stamped by early environmental factors. Their brain differences have resulted in continual warfare and murder. Difference in brains always results in differences in perception and behavior. In years past doctors made cuts in the brains of troublesome subjects. These cuts did not produce "normal" brains but they certainly altered behavior.

Price's brain was unique and gave him a unique view of his body, his environment, his world. I would place Price's brain among the relative few able to achieve stature in the world of word-pictures and story-telling. Given his unusually superior brain and his life in a world different from most of the rest of us, it is not surprising that he and his doctors, looking at the same objects, perceived different pictures. They talked past each other and never knew why.

Chronic disease of the organs of the body usually has a long latent period. Disease produces no symptoms until the process has destroyed more than 50% of the organ. An alert doctor may discover that a disease is present before it produces any symptoms. Once the patient is told that disease is present, that it may eventually be fatal, he begins to view his body and its relation to its environment in a new context. His brain is altered by what

the doctor tells him, by what the doctor does, by the number of times that he goes to the emergency room, by the treatment he gets, by the articles he reads, by the advice of his friends, by the behavior of other patients with the same diagnosis. These many inputs into his brain—a brain different from all others—produce a great variety of behaviors. The person, once "diagnosed," may become invalidated because of his new brain, not because of the organ disease.

The Care of Disease

Most doctors are trained in the treatment of disease. They are unaware of the uniqueness of each person's brain. They treat the disease and ignore the peculiarities and needs of the person with the disease. As medicine is now financed and practiced I see little hope that this will change. The system will pay for the collection of data to define the disease. It will not pay the doctor for the time needed to more completely characterize and individualize the patient.

I am acutely aware of this problem because I had a major role in the creation of the Duke data bank. By collecting data on patients with coronary artery disease who have undergone cardiac catheterization, the data bank is able to match patients by age and sex and degree of disease of the coronary vessels. Because we have careful follow-up, we can predict the outcomes of different forms of therapy. Reasonable calculation of the time of death is possible. But despite all this information we are unable to predict who will enjoy a rich and productive life after treatment. In fact, until the very end, it is the perceptions of the patient—perceptions determined by the structure of his brain at the time the disease was discovered and subsequent alterations after diagnosis—that determine behavior. We know the limitations of the present system, but until we have funds to collect information that will characterize the patient as well as the disease, we won't make much progress.

Building A Whole New Life

Back to Reynolds Price. His doctors knew that death or paraplegia were likely outcomes. The radiologist knew that intractable pain with eventual paraplegia was the best that could be hoped for. The doctors assumed that, because Price asked few questions, he did not want to know the truth. They said little. They did not know how to communicate with this unusual person who behaved in ways different from their average patient. Price assumed that they were indifferent to his needs and concerned only with capturing the details of the changes in his tumor.

Given this setting why did it take so long to create the new Reynolds Price? Most doctors are skilled in the use of drugs and procedures to change the course of disease. When the disease does not respond as they hope, they are less skilled in helping the patient use noncurative means to lessen the effect of disease. A few years ago the distinguished biochemist at the National Institutes of Health, DeWitt Stetten, Jr., became blind because of nontreatable macular degeneration. He was told by innumerable ophthalmologists that he would become completely blind. Stetten wrote that not one of these doctors told him how to modify his lifestyle and environment so that he could continue a productive life when vision was gone. Disease-oriented ophthalmologists were licked when they could not change the course of the retinal degeneration. They overlooked the fact that, with help and planning, a blind scientist could continue a useful life. Compared to Stetten's account, Price's criticism of Duke doctors is very mild.

Because there was so little communication between Price and the doctors, a great deal of his time was wasted vainly hoping that he would eventually recover and resume his former life. As long as he believed this he could avoid learning how to live as a paraplegic. When he accepted his paraplegia it meant that the old Reynolds Price was gone. Could a new one be constructed? The odds were favorable because of a superb brain. If any brain could change and regain its usefulness I would have bet on this one.

Doctors as a group know little about the brain and its adaptability. The brain has many excitatory functions. These must be kept in check lest we have continuous activity and die from exhaustion. The inhibitory functions of the nervous system modulate and control the excitatory functions. All of us know that intense concentration can inhibit the conduction of sensory impulses to the brain. We cut our skin but are unaware of it until we see the blood. A person under hypnosis can interrupt strong stimuli before they reach the level where pain is perceived; obstetricians from time to time perform painless Caesarian sections using hypnosis; the Chinese use acupuncture to produce sensory blockage and operate without drugs. But most physicians do not realize that the brain can be effectively trained to block out sensory impulses that would otherwise cause intense pain. One problem is that brains differ in their ability to learn how to do this, just as they do in all other aspects. Fortunately Price found out as a student that he was easily hypnotized. One lucky break for Price! Eventually, improved x-ray imaging and technical advances in surgical instruments allowed resection of the portion of the tumor that survived irradiation.

After successful surgery and the acceptance that the old Price was gone, Price learned, by experience, that intense preoccupation with his writing lessened his pain. He accepted hypnosis and biofeedback as ways to train the inhibitory functions of his brain. He gave up narcotics and began functioning as the new Reynolds Price. All of us say "Thank God!" What a gift he brings to us! We can all profit by this elegant account of his bout with disease. Don't fail to read A Whole New Life.

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Not All Rats Have Four Legs

Superwarfarin Poisoning

Ronald B. Mack, MD

Much to our surprise, growing up in a big city did not offer my brother and me much experience with four-legged rodents. We did, however, have some negative encounters with the two-legged kind. Aschildren, we were taught early on never to relate to outsiders anything that transpired in the family, in the house, or in any of the businesses that involved our parents. It was a pediatric form of *omerta*, the code of silence, which persists to some extent in our family's lifestyle even as we speak. It carried through to our sons but not to our grandchildren. In fact, children today are quite forthcoming about the sometimes intimate details of family. I am amazed and horrified by the confessions elicited on daytime talk shows. We did not "rat" on anyone, especially each other, it was against the code.

Rat Poison

Rodenticides are used to rid the world of quadruped rats, mice, and squirrels. The Federal Insecticide, Fungicide, and Rodenticide Act¹ classifies these products according to their potential toxicities. Highly toxic rodenticides include thallium (which is prohibited from use as a pesticide in this country), sodium fluoroacetate, strychnine, elemental phosphorus, arsenic, and zinc phosphate. Moderately toxic rodenticides are represented, for example, by naphthyl thiourea, also known as ANTU, and the *low toxicity group* by the hydroxycoumarins, red squill, warfarin, and norbromide. In this paper I will concentrate on the superwarfarins (from the low toxicity group) because they are very popular and because I receive more phone calls about this group than any other rodenticide. This is not surprising since, according to the annual report of the American Association of Poison Control Centers Toxic Exposure Surveillance System,² they are the rodenticides most commonly ingested in this country; 11,752 human exposures were reported in 1992.

Dr. Mack is Associate Professor, Department of Pediatrics, Bowman Gray School of Medicine, Medical Center Boulevard, Winston-Salem 27157. The superwarfarins are synthetic anticoagulants. This class of agents includes the 4-hydroxycoumarin³ derivatives (brodifacoum, bromadiolone, and difenacoum) and the inandione derivatives diphacinone, chloraphacinone, and pindone). The best studied is brodifacoum and, in my opinion, it is the one most likely to result in a call to you for help. The inandione6 derivatives are also used as anticoagulants. Although chemically distinct from the hydroxycoumarin derivatives, they are similar in action. They have the potential to induce cardiopulmonary and neurologic disturbances in animals and therefore may be more toxic than hydroxycoumarins. The good news is that they must be ingested for a longer period of time to produce adverse clinical features.

Brodifacoum is well absorbed from the human gastrointestinal tract and rapidly taken up by the liver where it is sequestered and slowly cleared from the body.³ The volume of distribution is 0.98 L/kg, and the plasma half-life is 487 hours in our particular species.^{4,5} Like the entire class of superwarfarins it is hydroxylated to inactive metabolites by hepatic microsomal enzymes and excreted via the kidney.

The Use and Misuse of Warfarins

The use of hydroxycoumarins goes back to the 1940s when investigators discovered that cows who ate moldy, spoiled, sweet clover developed a hemorrhagic syndrome, known as "sweet clover disease." The mangy, senescent clover contained a rather high-powered anticoagulant, the investigation of which ultimately led to the development of dicoumarol and warfarin. The first use of these chemicals was as anticoagulants to inhibit the formation of thrombi in human patients. Later these same compounds were formulated into compounds that would kill rodents by inducing hemorrhage. Warfarin was considered safe because it exerted its evil effects on people (and rats) only after chronic, repeated exposures. Prior to the widespread use of superwarfarins, we relied largely on conventional warfarin to help us get rid of rodent vermin.

In the 1970s superwarfarins were developed because rats became resistant to ordinary warfarin compounds.3 After plain warfarin, a 4-hydroxycoumarin compound, had been in use for almost a half-century, rats lost their sensitivity to such "simple" warfarin formulae as the old D-Con® compounds. The resistance was the result of mutation in a single dominant autosomal gene. Of course, this meant that once rats developed resistance it was transmitted to their offspring.

Superwarfarins are many times more potent than simple warfarin in producing hypoprothrombinemia. As a result they have no medicinal use in people. Like warfarin, these compounds interfere with the clotting cascade by interrupting the vitamin K cycle. 10,11 Vitamin K, you may recall, is an essential cofactor for the activation of blood clotting proteins before they are secreted from hepatocytes. Factors II, VII, IX, and X require vitamin K for activation.3 Simply stated, superwarfarins inhibit a microsomal enzyme (vitamin K epoxide reductase) and thus prevent the recycling of vitamin K epoxide to its reduced form, vitamin K hydroquinone.3

Vitamin K hydroquinone is needed in the carboxylation reaction that turns inactive blood-clotting proteins into active

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blood-clotting proteins. (So what, you exclaim, enough with the biochemistry, already!) Well now, the end result of the interference is bleeding, although there is a delay in the onset of bleeding based on how long the vitamin K-dependent factors persist in the blood (the halflives of factors II, VII, IX, and X are 50 hours, six hours, 24

hours, and 40 hours respectively).³

The newer superwarfarin compounds are more efficient than warfarin as killing agents because they are more lipophilic, which gives them an increased affinity for the binding site on the target enzyme and because they have long half-lives. These properties are wonderful if you desire to kill rats, either biped or quadruped varieties, but if a human eats this stuff the results can be bad news indeed.

Life (and Death) With Warfarin

By now you have figured out that the clinical manifestations of encounters with superwarfarin result from interference with the intrinsic and extrinsic pathways of the clotting cascade. Most cases of superwarfarin poisoning come about by oral ingestion but entry can occur by dermal or inhalation routes. It is no surprise that hemorrhage is the most common physical manifestation of this poisoning: Patients may come to you with epistaxis, bleeding from the gums, hemoptysis, hematuria, gastrointestinal hemorrhage (melena or hematochezia or hematemesis), ecchymoses, easily bruisability, abdominal or flank pain, and menorrhagia.12 Intracranial hemorrhage has been reported.13 It should be pointed out that these hemorrhagic disasters do not occur on the day of the toxic encounter. Typically patients seek medical assistance four days or more after their interface with a superwarfarin.14 An abnormal blood prothrombin time (PT) may be evident within 24 hours but the abnormality is maximal in 36 to 72 hours. 15 Furthermore, despite the fact that prolongation of PT generally occurs within 48 hours, the first clinical signs of bleeding may be delayed until one to four weeks after ingestion. In fact, the PT may remain abnormal for as long as 45 days to eight months in overdosed patients.

As previously mentioned, "ordinary" warfarins must be ingested repeatedly over a period of days to induce a coagulopathy in rodents or humans. But the superwarfarins can do their job after even a single ingestion. It is difficult to exactly quantify the toxic dose of these agents. There are case reports of children who experience abnormal coagulation after ingesting "mouthful" amounts.3,16 As little as 1 mg of brodifacoum produced a bleeding diathesis in an adult that persisted for 76 days. In another adult a dose of 0.12 mg/kg produced anticoagulation lasting 51 days.3 Brodifacoum (commonly sold

as Talon® or Havoc®) is avail-

able as a loose bait pack. The minimum amount required to depress prothrombin activity in rats has been reported to be 0.1 mg/kg—equivalent in a 10 kg child to a dose of 1.5 mg or the amount contained in 30 grams of 0.005% bait.3 A dose as small as 0.014 mg/kg equivalent to 2.8 grams of 0.005% bait—can produce

clinical toxicity in a 10 kg child.3 Knowing these figures is usually not much help at the bedside because it is so difficult to quantify the amount a given patient has ingested. What should you do when confronted with a case of superwarfarin ingestion? The biochemistry is probably not going to help you in an emergency, you need to act decisively.

Emergency treatment could include ipecac-induced emesis, if performed at home during the most effective time-window (30-60 minutes post-ingestion); if there is an accurate history of a one-time acute ingestion; and if the patient is not obtunded, convulsing, or bleeding.^{9,12} In the emergency room, acute ingestions can be treated with activated charcoal followed by a cathartic such as sorbitol. Standard investigation is rather simple: obtain a baseline prothrombin time (PT) and partial thromboplastin time (PTT). These two tests must be repeated in 24 and 48 hours regardless of the absence of signs and symptoms. If there is any prolongation of either PT or PTT, repeat the tests at six- to 12-hour intervals. For children—the biggest offenders—who you are sure have accidentally ingested only a few grains or pellets, observation can be carried out at home with PT and PTT measured on an outpatient basis.12 In a very interesting reported series, in children,17 the following results

were noted: Of the 110 children involved, eight (7.3%) had one or more abnormal PT ratios (1.20-1.44). No short-term symptoms or signs of clinical bleeding were observed in these eight children. In three children with normal prothrombin times, clinical signs and symptoms were observed; two vomited spontaneously; in one transient abdominal pain and hemepositive stools also developed.

Brodifacoum may seem like an esoteric poison to the reader but it is not. It is the most widely used rodenticide in the United States. Primary care health care providers who see children in their practice will encounter cases of brodifacoum ingestion. It is obvious that you will need to identify the product when you are asked to manage such a patient. No one can ever pronounce the chemical names of the products, so merely ask the ealler to spell the active ingredient so you can make an informed judgment. If the patient has a prolonged PT, then you must administer the specific antidote—phytonadione (vitamin K₁).¹² Do *not* use menadione (vitamin K).³ Vitamin K₁ can be given orally to patients who have ingested small amounts: 15-20 mg of vitamin K₁ to adults and 5-10 mg to children. If the patient is vomiting and if the PT is not so prolonged that you risk inducing a hematoma, you can give the same dose intramuscularly. If, however, the toxicity is severe, it would be prudent to administer the vitamin K, intravenously; there is a danger of producing anaphylaxis, so be cautious—dilute the drug and administer it slowly. The frequency and amount of subsequent doses depend on the patient's clinical condition and the re-

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1-800-225-2488 Fax: 1-800-526-0259 sponse of the PT to therapy. Vitamin K₁ acts to restore the oxidation cycle and the carboxylation process, thus reversing hypoprothrombinemia; it may be needed for weeks or even months—treat until the PT normalizes.

My Life With "Rats"

We were reared in the days of the "classic" movies. For a dime we could spend an entire Saturday afternoon reviewing a movie at least twice. The required 10 cents was obtained by arising early to pilfer empty milk and soft drink bottles from the back door stoops of inner city apartment buildings and turn them in for pocket change. Oops, I'm "squealing" on myself; I am becoming a "canary;" maybe you will find me done in, with a bird in my mouth to warn others of the dangers of speaking when one should keep quiet.

Our heroes were those portrayed on the "silver screen"—Humphrey Bogart, James Cagney, Edward G. Robinson, et al. They taught us how to be loyal and tough and brave and responsible—gosh, I miss those guys. They could be role models for today's youth—not the one-dimensional, namby-pamby actors of today (except Jack Nicholson). Recall, if you will, a sneering Jimmy Cagney, hitching up his trousers with one hand and rubbing the side of his nose with the other, exclaiming: "Yoooou, dirtee, rat!" Those were the "good old days!"

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Cystitis Glandularis

Transition to Adenocarcinoma of the Urinary Bladder

J. Brantley Thrasher, MD, Rishi R. Rajan, MD, Luis M. Perez, MD, Peter A. Humphrey, MD, PhD, and E. Everett Anderson, MD

Cystitis glandularis is a rare proliferative disorder of the epithelium of the urinary bladder. It is seen most often in cases of chronic inflammation.1 Whether this disorder leads to malignancy has been a controversial subject, but cystitis glandularis and adenocarcinoma of the bladder frequently coexist.²⁻⁸ For example, five large series of adenocarcinoma of the urinary bladder demonstrated co-existing cystitis glandularis in 10%-42% of pathologic specimens.9 Despite the frequent association of the two disorders, the actual conversion of cystitis glandularis to adenocarcinoma has been pathologically documented in only four previous cases. 10-13 We have cared for a patient whose biopsy-proven cystitis glandularis progressed to adenocarcinoma of the bladder over a seven-year period. We report his case and review previously reported cases.

Our Patient

A 64-year-old black man was seen in November 1988, after a seven-year history of intermittent gross, painless hematuria. He had undergone multiple transurethral resections of small lesions from the trigone of the bladder. He had symptoms of bladder outlet obstruction: decreased force and caliber of his urinary stream and nocturia. His

previous medical history was unremarkable.

Physical examination was normal except for minimal induration of the vesical base on bimanual examination. Laboratory studies were benign. He had normal blood counts and serum urea nitrogen, creatinine, and electrolyte values. Urinalysis was normal except for 5-10 WBC/hpf and few bacte-

ria; urine cytology was negative. Chest radiograph and intravenous urogram were normal.

Multiple erythematous lesions of the vesical trigone were seen with the cystoscope. Review of the pathologic specimens taken from the bladder trigone seven years previously showed the high columnar mucinous cells and scattered goblet cells indicative of cystitis

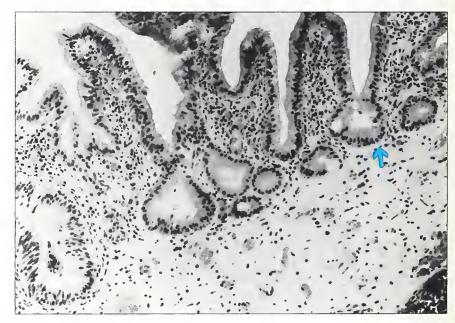


Fig 1: Cystitis glandularis, intestinal type, in bladder biopsy from 1981. The epithelial cells lining the glands are high columnar, with prominent mucinous features and occasional goblet cells. (H&E x125)

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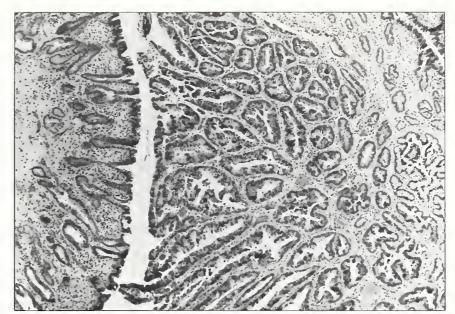
glandularis, intestinal type (Fig. 1, below left). Subsequent biopsies from the same region six years later disclosed atypical cystitis glandularis associated with adenocarcinoma-in-situ (Fig. 2, at right).

Because of the pathological findings, the patient underwent another transurethral resection of the bladder trigone. Once again adenocarcinoma-in-situ was present (Fig. 3, bottom right), and he underwent a radical cystoprostatectomy. The pathologic sections of the bladder base exhibited changes consistent with diffuse cystitis glandularis and adenocarcinoma-in-situ. There was no invasion of the lamina propria or muscularis. There was no detectable carcinoma in the pelvic lymph nodes, urethral margin, or prostate gland. Convalescence was uneventful; the patient remains alive and well with no evidence of disease.

Discussion

The etiology of cystitis glandularis is controversial, but two theories have been proposed. The first suggests that transitional epithelium undergoes metaplasia during chronic irritation and that cystitis glandularis is a metaplastic response to irritating factors such as persistent infection, calculi, tumor, or bladder outlet obstruction.14 According to this theory, the urothelium reacts by proliferation and the formation of epithelial buds which may be directed downward into the subepithelial connective tissue. The epithelial nests (Brunn's nests) thus formed may then become cystic ("cystitis cystica") or differentiate into columnar, mucin-producing cells that form secreting glands ("cystitis glandularis").4

The second theory proposes that endodermal intestinal cell nests remain in the bladder after the rectum separates from the urogenital tract during embryological development.³ This theory is strengthened by the fact that cystitis glandularis most commonly occurs at the base of the bladder around the trigone and vesical neck. It is weakened by evidence that cystitis glandularis can sometimes occur in upper urinary tract structures (renal pelvis and ureter) that are derived from mesoderm¹⁵ and by studies showing that the mucosa of an exstrophied bladder consists of transi-



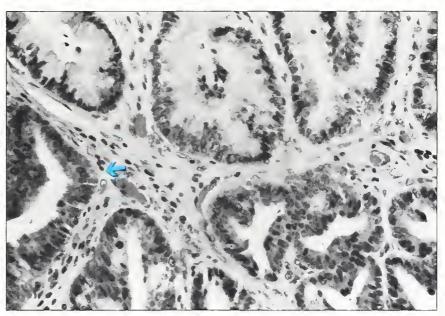


Fig 2 (top): Cystitis glandularis (left) with adjacent adenocarcinoma-in-situ (right). The glands exhibit irregular glandular outlines and complex enfoldings. (H&E x30) Fig 3 (bottom): Atypical glands of cystitis glandularis (top) and adenocarcinoma-in-situ (bottom). The cells in the adenocarcinoma have increased nuclear/cytoplasmic ratios, cytologic atypia in the form of enlarged nuclei with prominent nucleoli, and loss of polarity. Numerous mitotic figures are present. (H&E x200)

tional cell epithelium at birth with cystitis glandularis or adenocarcinoma forming postnatally.¹⁶

Three recent reports of patients with pelvic lipomatosis, mucus-secreting adenocarcinoma of the bladder, and cystitis glandularis offer further credence to the theory of metaplastic change. 13,17,18 Pelvic lipomatosis is

thought to obstruct both the upper and lower urinary tracts resulting in chronically infected urine and the subsequent development of a proliferative cystitis. 13,17

The progression to adenocarcinoma appears to be a function of time and continued irritation of the vesical epithelium. One of the patients with pelvic lipomatosis¹³ showed progression of cys-

titis glandularis to adenocarcinoma over a six-year period. Adenocarcinoma of the bladder occurred in three other documented cases at five,10 seven,11 and I4 years12 after the pathologic diagnosis of cystitis glandularis. The patients reported by Shaw et al10 and Edwards et al12 had chronically infected urine during the transition from cystitis glandularis to adenocarcinoma, but there was no evidence of chronic infection in the case reported by Susmano and associates.11 Heyns et al13 reported a single documented urinary tract infection in their patient, but no evidence of chronically infected urine. Our patient had symptoms of bladder outlet obstruction and chronically infected urine. These five cases support the idea of a transition from cystitis glandularis to vesical adenocarcinoma over a prolonged period and imply that chronic inflammation is the metaplastic stimulus.

The symptom complex of cystitis glandularis is variable and not particularly helpful in diagnosis. The most common symptoms are dysuria, urgency, fre-

quency, and occasional gross hematuria. In addition, patients sometimes complain of voiding tenacious mucus.19 The correct diagnosis may be suspected when patients have conditions commonly associated with cystitis glandularis (bladder stones, infection, bladder tumor, or obstruction) or when cystic lesions are found at cystoscopy. In severe cases there may be hydronephrosis or a space-occupying lesion of the bladder identified by intravenous urogram. Computerized tomographic scan is not diagnostic. The diagnosis is ultimately made by demonstrating the characteristic histological lesions, usually in tissue obtained by transurethral resection.

Treatment for minimal vesical involvement with cystitis glandularis usually consists of alleviating the source of irritation (treating urinary infection or vesical calculi). Some authors advocate transurcthral resection and fulguration both to treat the disease and to relieve bladder outlet obstruction associated with it. 14 Cystectomy with urinary diversion and open transvesical resection are reserved

for extensive disease that cannot easily be handled by endoscopic resection.^{1,11} Recently, the neodymium: YAG laser has been used to treat severe cystitis glandularis causing bilateral hydronephrosis.¹⁴

Our case, in conjunction with the four previously reported, lends credence to the malignant potential of cystitis glandularis. After the diagnosis has been confirmed, removal of an inciting factor may result in a normal follow-up cystoscopy. Cystoscopy should probably be repeated after one year; if it is normal and the patient is asymptomatic with a normal urinalysis, further follow-up is probably not cost-effective or needed. On the other hand, we believe that patients who continue to have symptoms of bladder outlet obstruction, abnormal cystoscopy, or chronically infected urine are at risk for the development of malignancy. They should undergo compulsive surveillance consisting of annual cystoscopy and biopsy of suspicious lesions. Urine cytology does not appear to be particularly useful. \Box

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My Involvement in the Iranian Hostage Crisis

Claude A. Frazier, MD

Deep in my heart I have always felt that I was engaged in a ministry, a feeling that it is my duty to do what I can to help humankind, whether dealing with individuals or groups. Stemming from this, I am sure, is my deep compassion for the downtrodden and for those who face situations over which they have no control.

For those reasons the date of November 4, 1979, is burned indelibly into my memory. On that day Iranian revolutionary militants, under the aegis of the Ayatollah Ruhollah Khomeini, seized the United States Embassy in Teheran and took everyone there hostage. It became America's darkest nightmare since Vietnam. When I heard the news, a burden descended upon me that I found impossible to shake. I felt compelled to try to do something that might help those who were unfortunate enough to be involved in the situation.

I recalled my pediatrics residency at Washington Children's Hospital. I had served with an Iranian intern who had gone back to his homeland to practice. I stopped whatever I was doing, went to my office, and looked up his whereabouts in Iran. Early in the evening I placed a telephone call to a hospital in Teheran. I had no idea what I was going to say if I reached him. I had never found it easy to pray: "Thy will be done." Some people pray it loosely, but that night I prayed it fervently, meaning every word, knowing that it meant that God would direct everything I did.

I did not realize the vast problems of getting through to Iran at that time. The operator kept saying it was impossible, but the feeling that I was directed to do this grew stronger as the hours passed. I insisted that the operator try and try again. Frustration grew to enormous proportions on both ends of the telephone. At II a.m. our time, we were told that the lines were down in Iran. I worried that this might be because of war, but that was not the ease. International Operator 101 stayed with me and at I p.m. Sunday we reached the hospital in Teheran and asked for my friend. The English-speaking pediatrician who answered the

phone told me that my friend had been killed in an accident. He suggested I contact Dr. X, professor of pediatrics, and gave me his number in Iran.

Dr. X wasn't home when I called, but his daughter was. She asked me how I had gotten their number and I told her that I got it from a physician at the hospital in Teheran.

"You called Iran?" she asked, sounding startled. "Why?" I explained briefly what I had in mind: to try to do anything I could bring about a peaceful settlement of the hostage crisis.

"Do you know the emotions and feelings of the Iranian people?" she asked. I said, "I don't, but in America we talk about walking in other people's moccasins." I told her that God looks upon all of us on the same level and that I thought her father, a physician, would have similar views. When I told her I didn't want bloodshed by either the Iranian students or the American hostages, she was more receptive.

The next day, Dr. X called me from Iran. He, a Muslim, said almost with reverence: "You must be a godly man. I have never heard anyone talk the way you did to my daughter." I felt I had to convince Dr. X of my sincerity. "We physicians," I said, "at all times, in all places, treat even the enemy in the battlefield. The practice of medicine transcends race, religion, politics, anything else—even war."

"You are right," he said, "medicine transcends politics."

I talked with him about the importance of having Iranian physicians examine and treat the hostages. He agreed that this was of utmost importance and certainly the humane thing to do.

Then I telephoned the State Department to be sure that what I was doing was right. I spoke to Carl Clements, head of the Iranian work group there, and he reassured me. "I urge you to continue," he said. "Any avenue we can open up right now will be of help." He asked me why I was doing this, and I said that I wanted Iranian physicians to see the hostages, to relieve tension and to show that the Iranian people did care. All the Iranians I knew were caring people.

During the next few days, Dr. X and I talked repeatedly until I broke through his guarded reluctance and he began to tell me about the conditions in Iran. I called Dr. X every day. Imagine the telephone bill! After several conversations, I real-

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ized that he might be a valuable contact for the State Department, but I knew I must guard his identity for fear that something I did—or the State Department did—might lead him afoul of Iranian authority. I was determined to serve as an intermediary between Dr. X and the State Department. I assured Dr. X that the State Department wouldn't tape record our phone conversations. He insisted his name never be used. Clements wanted his name, but, to protect him and his family, I refused to reveal his identity. During the entire period of my involvement, I had contact with several medical people in Iran. In my notes I called them Dr. Z, Dr. A, Dr. S, and Mr. B, so that no one who got hold of my notes would learn who they were. I committed their names to memory, not paper. I have not revealed them to this day, not to anyone.

I suppose that the State Department had ways of determining whether I was legitimate or a kook. The people I dealt with must have found in favor of legitimacy. Soon they were calling me, providing questions to ask Dr. X when I talked to him next. When all this started, I had no idea what I was doing, but the way the thing snowballed after the State Department came in was amazing. I began to feel more comfortable. I was in constant communication with the State Department. Carl Clements gave me his unlisted home telephone number and told me to call him at home if anything important came up.

I know Dr. X worked hard to accomplish what I had suggested. After several days he put me in contact with an Iranian physician, a student of his who was coming to the US. When the physician went back to Iran he called me from Teheran to report that he and other physicians were, indeed, visiting and caring for the hostages. He mentioned three times in our conversation, "I have been praying about this situation. It is criminal and a tragedy that the hostages are being held." When I reported to the State Department that Iranian physicians were seeing the hostages, they wanted a public statement. I asked the Iranian physician if he would give one. He refused, saying "Dr. Frazier, you don't know how the situation is over here."

One day, Dr. X surprised me by asking bluntly: "Would you be willing to come to Iran and talk to the Ayatollah?"

"Khomeini?" I asked.

"Yes." He assured me that I would be in no danger. There would be guards, and people would know I was coming. Suddenly the fat was in the fire.

"Yes, I would," I said, "if you think it would help the situation."

Dutifully I reported to Clements. "What did you tell him?" he asked.

"I said yes, but I told him of my religion: I'm a devout coward."

"You shouldn't go yet. Wait a little bit." Later I wished he had let me go. Who knows, I might have done some good.

Eventually, my attempts to help the hostages reached the White House. I had met President Carter earlier, even treated Mrs. Carter as a patient. At one time I had served with the President on the Brotherhood Commission of the Southern

Baptist Commission. He remembered me. The president's speech writer, Robert Maddox (author of *Preacher in the White House*) called to ask: "Would you get in touch with your Iranian contacts and see what they would suggest the President say in his State of the Union message?" I said I would talk to them.

Dr. X was delighted. After talking to Khomeini he got back to me and said: "There are two things he asks President Carter to do. First, have your country help build schools and hospitals. Second, have him apologize for the CIA helping the Shah."

I relayed the information to Maddox at the White House. "Yes, we can do that," he said. But a little later he called back and said, in a subdued voice, "I have talked to the chief of staff of the Army and we cannot apologize for the CIA helping the Shah." That was one of Iran's demands throughout the hostage crisis, and one that the US steadfastly refused to give in to.

Later, after Carter's presidency ended, I wrote and asked him if he could have apologized for the CIA. He wrote back: "There was no possible way I could have apologized to Khomeini for any previous action of the CIA." Since then, I have often wondered if an apology would have saved his presidency.

In September 1980, the State Department called and asked me to fly to Washington for briefing. I was to go to Iran with two other physicians, both prominent in American medical circles. At the airport in Washington, a State Department representative met me and drove me to the State Department. Walking into that place was like walking into intrigue. The doors had no numbers and no knobs. We were admitted only after we were cleared to go through each door. The briefing lasted two hours.

I was to fly to Iran the following day, September 20. That morning I had a telephone call from Larry Semakis, who had replaced Carl Clements at the State Department. He told me I couldn't go, that it was too dangerous at the moment: "War has begun between Iran and Iraq. The airport in Teheran has just been bombed and the situation is too volatile."

I said that I was still willing to go, but the trip was canceled. So, I came back home, and, in my own way continued to try to open a pipeline to the hostages.

I have always found medicine to be exciting, but I have never encountered anything like the events I went through after making that initial call to the hospital in Teheran. I don't know whether my efforts helped, but I feel that I did get medical attention for the hostages. They remained in captivity for 444 days, until January 20, 1981. On that day, Inauguration Day, when Jimmy Carter left office and Ronald Reagan was sworn in as our 40th president, the hostages were released. They reached the US on January 25.

In my many conversations with Dr. X I learned that he had once accompanied the Shah to the airport and a photographer had taken a picture of the group. He wanted to keep it quiet to avoid trouble. Later, after the crisis ended, he and his family moved to Washington, DC. His daughter, the one I talked with initially, once visited us in Asheville. I was delighted to finally meet her. She and I played tennis. I'd like to think that her father and I, in some small way, contributed to the diplomatic efforts that ensured physician involvement with the hostages.

Carolina Physician's Bookshelf

Basic Medical Endocrinology, 2nd ed.
M. Maurice Goodman, MD. New York: Raven Press, 1994, 332 pages, \$38. ISBN 0-7827-0105-8

Reviewed by Fiona Cook, MD, Fellow in Endocrinology and Metabolism, and D. Kirk Ways, MD, PhD, Associate Professor of Medicine and Head, Endocrinology and Metabolism, School of Medicine, East Carolina University, Greenville 27858

Few physiology texts can be read cover to cover with enjoyment. Dr. Goodman's *Basic Medical Endocrinology*, 2nd Edition, is one such book. This compact paperback provides extensive, up-to-date information on human endocrine physiology and gives an excellent introduction to the basic physiologic concepts of the endocrine system.

The book is organized into three sections. This arrangement, and the fact that most of the text is written by a single author, results in a well-organized flow of information. Part I begins with an introductory chapter that discusses the nature of hormones—their biosynthesis, storage, secretion, and mechanisms of action at the cellular and molecular level. Subsequent chapters on each individual gland use and build on these concepts.

Part II starts with an overview of the principles of hormone integration that gives the student an excellent perspective on endocrine function. Ensuing chapters cover hormonal interactions that maintain the internal environment.

Part III includes chapters on hormonal interactions that govern growth and reproduction. The final chapter on hormonal control during pregnancy is a unique and fascinating presentation of an area in which many questions remain.

Each chapter contains short, titled subsections followed by a concise list of suggested readings. Abundant graphs and diagrams clarify the detailed mechanisms discussed in the text. Basic science concepts are liberally interspersed with illustrative clinical correlations.

We highly recommend this text for use in an introductory medical school endocrine physiology course. Unlike more encyclopedic endocrine physiology texts, medical students in the basic science years could complete the book within the usual time frame of an introductory medical physiology course. Dr. Goodman's text would also provide an appropriate base of knowledge to better understand endocrine pathophysiology.

Given the basic, physiologic nature of this text, we do not recommend that practicing physicians refer to it for the diagnosis and treatment of endocrine illness. Several more detailed and clinically oriented endocrine textbooks provide a more relevant review of the diagnosis and treatment of endocrine diseases. These would be more appropriate references for practicing physicians.

Disorders of Hair Growth: Diagnosis and Treatment Eilse A. Olsen, MD, ed. New York: McGraw-Hill, 1994, 426 pages, \$115. ISBN 0-07-047934-8

Reviewed by Peter W. Jaber, MD, Western North Carolina Dermatologic Associates, 281 McDowell St., Asheville 28803

Patients with hair disorders are commonly seen in both dermatology and primary care practices. Hair loss or overgrowth can be a manifestation of systemic disease. This specialty text covers a difficult subject that is often very frustrating to both patients and physicians. The editor, an associate professor of dermatology at Duke, emphasizes that most cases of alopecia can be diagnosed and effective treatment offered. This comprehensive reference book makes the diagnosis and treatment of hair disorders concise, clear, and eminently practical.

The multi-authored, 426-page volume is divided into 14 chapters, most of which are complete, up-to-date, well-written and well-organized. Early chapters discuss hair anatomy and physiology. The rest of the book focuses on alopecia areata, anagen and telogen hair loss, androgenetic alopecia, hypertrichosis, hirsutism, and scarring alopecia. Sections on pediatric hair loss and hair shaft defects cover more than 100 pages.

An especially helpful chapter discusses essential diagnostic techniques for the practicing physician. There is a good review on hair transplantation. Chapters on hair care products and hair problems unique to blacks offers useful and interesting information that is not commonly found elsewhere. Considering that each chapter has been written by a different author (18 contributors), the overall flow of the text is excellent. Areas of overlap are minimal and generally in agreement. The book is presented in an easy-to-read format, filled with helpful tables and many illustrations. Most chapters are extensively referenced with current articles, and the index is thorough.

Although this text has many strong points, it also has a few weaknesses. The treatment discussions could benefit from highlighting or boldfacing the most efficacious therapies, along with the author's favorite step-wise approaches to therapy. For example, the treatment section on alopecia areata covers 13 pages and discusses many different studies. A hurried clinician

might have difficulty zeroing in on a practical treatment approach. Also, I prefer to have individual diseases presented with their treatment, and not widely separated as in some chapters.

The illustrations are variable in quality. More clinical and pathological photographs would be beneficial.

I believe that this is the best, current, comprehensive source of information on hair disorders. I highly recommended it for dermatologists who should find it a valuable reference in their daily practice. Primary care physicians with an interest in hair disorders should also consider this book. For many physicians, a basic dermatology text will probably cover most of the common hair disorders in adequate detail. This will likely become an essential reference for dermatology training programs and medical libraries, and is a good value for its price.

The Health of the Presidents John R. Bumgarner, MD. Jefferson, NC: McFarland & Co., Inc., 1994, 330 pages, \$35. ISBN 0-89950-956-8

Reviewed by James F. Toole, MD, Director, Stroke Research Center, Bowman Gray School of Medicine, Winston-Salem 27157-1068

Reading this book suggests to me that presidents of the United States have, in the aggregate, been an unhealthy lot. One wonders whether it is their frailty or the demands of the position. If the latter, perhaps the Oval Office should have a cautionary sign over the door, stating that to enter may be hazardous to one's health.

From our first, George Washington, who suffered with malaria, tuberculosis, smallpox, privation, recurrent dysentery, dental caries, failing vision, deafness, and finally, fatal quinsy, president after president in this chronicle of the 4I occupants of the office, to our current President Clinton, have had medical problems. Dr. Bumgarner has documented them in a sprightly manner, with selected bibliographies, usually from the literature of history rather than medicine. He avoids psychohistory and the "what ifs" and "might have beens" which are now so popular in historical revisionism.

There is even humor to be found. For example, it was said that the 300-pound President Taft was the politest man alive because he gave up his seat on a trolley so that three women could sit down. He then describes Taft's lifelong love-hate of his obesity and how, in his declining years, he suffered with dementia, of which he was quite aware, and which made his dotage tragic.

This book is unique because it was compiled by a medical practitioner as a labor of love. I recommend it to both physicians and laypeople. All those interested in history and the background of ailments that might have affected presidents and their decisions will enjoy perusing this inexpensive book.

Book review editor is Edward C. Halperin, Professor and Vice Chairman, Department of Radiation Oncology, Box 3085, Duke University Medical Center, Durham 27710.

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Aphorisms of the Month

Daniel J. Sexton, MD, Editor

More Selected Sayings from "Big Ed's Calendar"

Ninety percent of politicians give the other ten percent a bad reputation.

—Henry Kissinger

It's going to be fun to see how long the meek can keep the earth after they inherit it.

—Kin Hubbard

Christian humility is preached by the clergy, but practiced only by the lower classes. —Bertrand Russell

Humor can be dissected, as a frog can, but it dies in the process and the innards are discouraging. —E.B. White

I seldom eat octopus on account of not caring for the taste of hot India rubber.

—Noel Coward

I have a face that is a cross between two pounds of halibut and an explosion in an old-clothes closet.

—David Niven

Ours is the only culture dominated by business to the extent that sports, sex, death, philanthropy, and Easter Sunday are money-making propositions.

-Margaret Halsey

A memorandum is written not to inform the reader but to protect the writer.

—Dean Acheson

If a man who cannot count finds a four-leaf clover is he lucky?

—Stanislaw Lee

If you're not confused, you are not paying attention.

—George Mason

It is a common delusion that you make things better by talking about them.

—Rose Macauley

Editor's note: Abstracted from Judge Ed Dycus's column in *Briefcase*, a publication of the Oklahoma Bar Association, copies of which were provided by John M. Perry, III.

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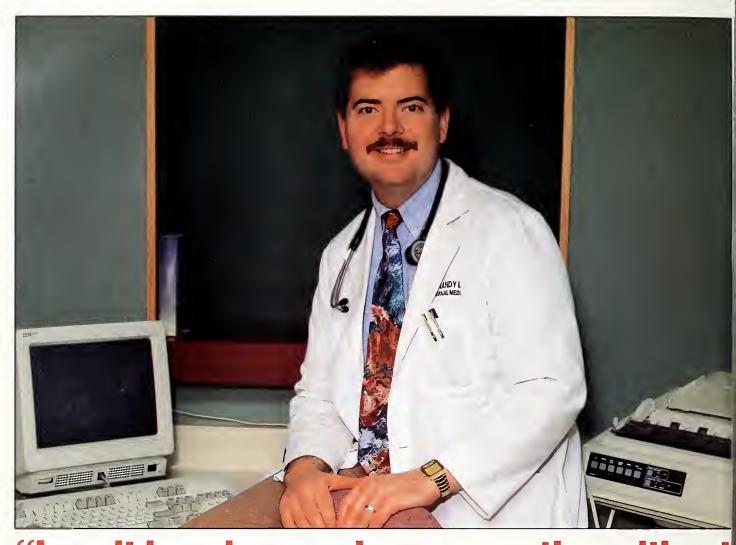
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The Official
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December 1994 Volume 55 Number 12

North Carolina Medical Journal

For Doctors and their Patients



In this issue:

Case reports: Laryngeal Blastomycosis, Ureteropelvic Junction Obstruction

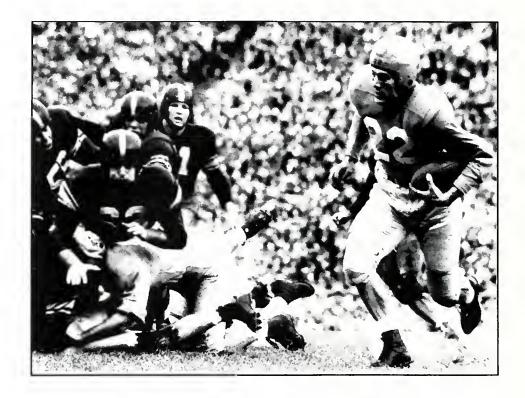
Medical Education: How Ageism Distorts Patient Assessment

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Public Health: Medical Needs of the Chapel Hill Homeless

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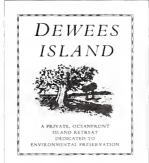
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- A. Morales et al., New England Journal of Medicine: 1221. November 12, 1981.
- Goodman, Gilman The Pharmacological basis of Therapeutics 6th ed., p. 176-188. McMillan December Rev. 1/85.
- 3. Weekly Urological Clinical letter, 27:2, July 4, 1983.
- A. Morales et al., The Journal of Urology 128: 45-47, 1982.

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—Constitution and Bylaws of the North Carolina Medical Society. Chap. IV, Section 3, pg. 4.

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North Carolina Medical Journal

FOR DOCTORS AND THEIR PATIENTS

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Letters to the Editor



Meeting the Challenge of HIV To the Editor:

The article by Drs. Keitz and Bartlett in the October issue, "Facing the Challenge of HIV: Primary Care Physicians Have an Obligation to Care for Those Infected," (NC Med J 1994;55:468-70) is a wake-up call for physicians.

Our response in this era of cynicism—its decline in volunteerism; its paucity of leadership; our exasperation with the many negative elements in society—will not only enhance the care of these needy patients, but will also enhance the public's perception of our profession. The thrust of our legislative and other efforts depends largely on our credibility. Solving this access problem would significantly alter the current perception that patients trust their individual doctors but have reservations about the profession as a whole.

Asphysicians, we would benefiteven more so. Knowing that we have met this challenge will underscore the personal commitment and dedication that distinguishes our choice of profession from all others.

Elizabeth P. Kanof, MD Immediate Past President North Carolina Medical Society P.O. Box 27167 Raleigh, NC 27611

"Family Business" Hits Home To the Editor:

I wish to compliment Dr. Halperin on his editorial "Family Business" (NC Med J 1994;55:494-5). I was raised in Westchester County, New York, where my elderly father, a widower, is in failing health. Several years ago, he required emergency four vessel coronary artery bypass surgery. Because Westchester County has a poorly developed home

health care system, I was obligated to attend to his subacute postoperative needs, at which time I went through a monumental effort to establish a reasonable home health care support system for him. My father has remained absolutely adamant about not selling his home and relocating to some type of "retirement community."

I believe Dr. Halperin's editorial has demonstrated extraordinary sensitivity with respect to changes in our society and the pressure placed on us to truly attend to "family business."

> Robert D. Ornitz, MD, Director Department of Radiation Oncology Rex Hospital Cancer Center Raleigh, NC 27607

To the Editor:

Dr. Ed Halperin's "Family Business" (NC Med J 1994;55:494-5) was superb. I will photocopy this for some of my friends at Arbor Acres (Triad United Methodist Home in Winston-Salem), which is very much like the excellent home Dr. Halperin describes.

Eben Alexander, Jr., MD
Professor Emeritus
Bowman Gray School of Medicine
Medical Center Boulevard
Winston-Salem, NC 27157

To the Editor:

I enjoyed and appreciated the wisdom of Dr. Halperin's "Family Business" (NC Med J 1994;55:494-5). It is so nice to see "sensitivity" revisited—unfortunately, a major problem for all of us in our quest for fortune and fame!

Carolyn Ferree, MD
Department of Radiation Oncology
Bowman Gray School of Medicine
Medical Center Boulevard
Winston-Salem, NC 27157

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From the Editor:

The Journal is flattered to have been selected and pleased to enter into an agreement with ISI to provide Journal articles through its document delivery service.

Recommended Reading To the Editor:

It is at times like these that I feel proud to be a Tarheel. I became aware of Reynolds Price and his book "A Whole New Life" when he was interviewed recently on "The People's Pharmacy" on National Public Radio, and I was pleased

Continued on page 597

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Changes in the House of Medicine

Thad B. Wester, MD

Editor's note: The following essay was adapted from the Presidential Address Dr. Wester presented to the House of Delegates of the North Carolina Medical Society at its Annual Meeting in Greensboro, November 6, 1994.

The House of Medicine today stands in the path of the winds of change. The full manifestations of the changes to come remain unclear, but their arrival is certain. The people we serve, for better or worse, right or wrong, are insisting that the rules of the game are going to be changed.

It's as if a football team has built its recruiting and coaching strategies on a strong passing game only to find that, halfway through the game, the forward pass has been outlawed. Teams that don't have that ability may be better off, but those who established that strength may well be devastated. Older physicians who are almost through with the game will find the impact minimal. Younger physicians, those just starting, will have time to accommodate to the changes. But for many, the game itself will be significantly different and adjustments will be difficult and painful.

I use the football analogy to remind us that we did not ask for these changes. As individuals, we have always played by the rules and will continue to do so. It is the people we serve who are changing the rules, and we must be certain that the new rules will preserve and protect the values we know to be meaningful and important. Change, always disruptive, should not be feared. Charles Kettering reminds us that without change there is no progress. Change produces opportunities. We must seize the opportunities to ensure that there is progress and that our patients' needs are addressed.

The NCMS in the Year Ahead

As I look to the year ahead, I have tried to identify those areas where I see weakness in our Society, those areas where I see strength, and to identify specific, strategic goals for our Society. Let me elaborate:

Areas of weakness. The great risk of division among us con-

cerns me greatly. As it becomes more clear who will be "winners" and who "losers," we risk having poor winners and poor losers. We should ever be mindful of Abraham Lincoln's Biblical admonition that a house divided cannot stand. We must seek out the issues in which we share a common interest and build on them. We must not dwell on those that divide us.

Over the years, medicine has become increasingly depersonalized. This has led to the perception that physicians are less interested in the welfare of their patients than in their own welfare. We are perceived as more self-serving than serving. In the focus groups convened by the Society during the summer, many of you raised concerns about the image of physicians; you noted the surveys indicating that patients today would rather discuss their health conditions with a pharmacist than with their physician. We must look for ways to recount the many "good" stories about our profession—like our free clinics—and thereby reestablish an image of physicians that is right and fair.

I see an important weakness in the limitations on our ability to influence some of the crucial health care decisions that are being made. It would be wonderful if we could forge a unified position that would place us in control of practice options. But laws force us to participate with one hand tied behind our backs. Our ability to respond with one voice is limited.

We are also limited in dealing with the emerging entrepreneurial activities unleashed by the private sector. Most of us shared a sense of relief as it became increasingly clear that the national government's move toward health care reform was sputtering and would ultimately be put on hold—something no one would have predicted early this year! On the other hand, very significant reform has already taken place under the aegis of the private sector. We need go no further than Mecklenburg County to see a most dramatic manifestation of this in North Carolina. For a variety of reasons, the House of Medicine is not always well positioned to react as swiftly and decisively as the

private sector. Right before our eyes the private sector has revolutionized and is continuing to revolutionize the financing and delivery of health care in this country—government did not bring on this change!

Perhaps the emergence of the private sector has come about because actions by government require a political process that moves erratically and often very slowly. Medicine has built legislative and political strengths, yet many physicians find these areas uncomfortable or even unappealing. There are issues, though, that only government will be able to resolve, issues such as insurance reform, tort reform, and universal access. These are so important that we must continue our efforts to assist the legislative process.

Areas of strength. What are our strengths? Although my list is not prioritized, I begin with the fact that the Medical Society is the only organization in North Carolina that can represent the interests of all physicians. It is to our organization that political leaders and other key policymakers turn for the views of physicians. Weaknesses are inherent in our strength, however, since our organization is a federation of diverse interests. We must continue to articulate the Society's positions using sound principles based on the best interests of our patients and not our own self-interest.

One of our great strengths is the Society's staff and executive leadership. I was heartened to review the comments of the focus groups about the role of the Society and to conclude that, for the most part, it is serving the interests of the membership. We need only relatively minor changes in emphasis to continue that service.

We have in place a highly effective and competent legislative staff at a time that is crucial for us. The successful search and recruitment of Executive Vice President Bob Seligson has brought new energy and vigor to an already dedicated staff. Mr. Seligson and his staff will use the very valuable input of the focus groups to craft a strategic plan to be completed early next year. The Society's Long-Range Planning Committee will work in parallel with the staff as we chart a course for the Society in the coming months.

I see strength in what I call the legacy of leadership. I remember vividly those giants who led us through many difficult issues during the more than 40 years that I have been a member of this Society. It's obvious that this heritage is still alive and provides for us a "can do" spirit. The wisdom of our senior leaders and medical diplomats is needed now more than ever, and I shall personally lean heavily on them for counsel. I am pleased to find that the torch of leadership is continually being passed to young and bright physicians, capable of filling some very big shoes. On this front we are doing well.

Specific goals for our Society. I have chosen two areas to focus on during the coming year. They are not exclusive of one another. I am reminded of how one of President Reagan's staff described the reasons for his successful presidency: He limited his agenda to only two concerns, "The evil empire" and "No

new taxes." Regardless of your political persuasion, simplicity is attractive and will, I hope, work for me.

My two agenda items are: 1) To preserve, protect, and promote those values in the practice of medicine that benefit our patients; and 2) to improve the operations and structure of the Medical Society so that it will be more responsive to and more effectively meet the needs of its members. To serve these ends, I have asked the Society to create, for the first time, a task force to explore these issues and report to us its recommendations on how we can preserve and protect Medicine's values. I am delighted that Harvey Estes, one of our preeminent leaders, has accepted the responsibility. I shall also ask each of the Society's committees, and the entire membership, to make recommendations that will preserve and enhance quality and value for all of us in medicine.

The second agenda item sounds less exciting but will enable us to address the weaknesses I have outlined and build on our strengths. I am concerned that, over time, organizations such as ours become driven by tradition and the attitude that "we have always done it that way." Mr. Seligson and I are in lockstep agreement about opportunities to "thin out" some of our activities and restructure our work so that organizational bureaucracy does not consume too much of our energy. We must be able to focus on important issues.

I have outlined my goals to the Executive Council. I believe we agree that our meetings should use more consent agendas and executive summaries so that we can focus on issues. We cannot in good conscience expect members to leave a busy practice or sacrifice their free time in meetings that favor protocol over meaningful dialogue and discussion. To further these ends, I have reorganized and consolidated several committees and have created three commissions that will logically cluster functions. I have turned to young, but proven and emerging leaders to chair the commissions. I believe they will support our concerns about efficiency. Darlyne Menscer of Charlotte will chair the Commission on Personal Health; Charles Wilson of Greenville, the Commission on Community Health; and Michael Brennan of Burlington, that on Operations.

Conclusion

I want to assure each of you of my deep commitment to serve you and our organization and its interests. As some of you know, I will end my responsibilities in public health in Raleigh in a few weeks. I made this decision in order to be unencumbered and to be available during my year as president. Please do not interpret this as a requisite to serve as President of this Society. It is the right time for me to make such a move and it may be of value to the Society.

I pledge to do my best for you and the Society but remind you that a team is always stronger than the sum of the strengths of its players. I ask for your commitment as we look for that which is in the best interest of those we serve, our patients.

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REFERENCE:

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BRIEF SUMMARY

PERCOCET" (Dxycodone (WARNING: may be habit forming) and Acetaminophen Tablets, USP)

INDICATIONS AND USAGE PERCOCET is indicated for the relief of moderate to moderately severe pain.

CONTRAINDICATIONS PERCOCET should not be administered to patients who are hypersensitive to oxycodone or acetaminophen.

WARNINGS Drug Dependence: Oxycodone can produce drug dependence of the morphine type and, therefore, has the potential for being abused. Psychic dependence, physical dependence and tolerance may develop upon repeated administration of PERCOCET, and it should be prescribed and administered with the same degree of caution appropriate to the use of other oral narcotic-containing medications. Like other narcotic-containing medications, PERCOCET is subject to the Federal Con-trolled Substances Act (Schedule II)

PRECAUTIONS General: Head Injury and Increased Intracranial Pressure: The respiratory depressant effects of narcotics and their capacity to elevate cerebrospinal fluid pressure may be markedly exaggerated in the presence of head injury, other intracranial lesions or a pre-existing increase in intracranial pressure. Furthermore, narcotics produce adverse reactions which may obscure the clinical course of patients with head injuries.

Acute Abdominal Conditions: The administration of PERCOCET or other narcotics may obscure the diagnosis or clinical course in patients with acute abdominal conditions.

Special Risk Patients: PERCOCET should be given with caution to certain patients such as the elderly or debilitated, and those with severe impairment of hepatic or renal function, hypothyroidism, Addison's disease, and prostatic hypertrophy or urethral stricture.

Information for Patients Oxycodone may impair the mental and/or physical abilities required for the performance of potentially hazardous tasks such as driving a car or operating machinery. The patient using PERCOCET should be cautioned accordingly.

Drug Interactions: Patients receiving other narcotic analgesics, general anesthetics, phenothiazines, other tranquilizers, sedative-hypnotics or other CNS depressants (including alcohol) concomitantly with PERCOCET may exhibit an additive CNS depression. When such combined therapy is contemplated, the dose of one or both agents should be reduced.

The use of MAO inhibitors or tricyclic antidepressants with oxycodone preparations may increase the effect of either the antidepressant or oxycodone.

The concurrent use of anticholinergics with narcotics may produce paralytic ileus.

Usage in Pregnancy Pregnancy Category C: Animal reproductive studies have not been conducted with PERCOCET. It is also not known whether PERCOCET can cause fetal harm when administered to a pregnant woman or can affect reproductive capacity. PERCOCET should not be given to a pregnant woman unless in the judgment of the physician, the potential benefits outweigh the possible hazards.

Nonteratogenic Effects: Use of narcotics during pregnancy may produce physical dependence in the neonate.

Labor and Delivery: As with all narcotics, administration of PERCOCET (oxycodone and acetaminophen tablets, USP) to the mother shortly before delivery may result in some degree of respiratory depression in the newborn and the mother, especially if higher

Nursing Mothers: It is not known whether PERCOCET is excreted in human milk. Because many drugs are excreted in human milk, caution should be exercised when PERCOCET is administered to a nursing woman.

Pediatric Use: Safety and effectiveness in children have not been established.

ADVERSE REACTIONS The most frequently observed adverse reactions include lightheadedness, dizziness, sedation, nausea and vomiting. These effects seem to be more prominent in ambulatory than in nonambulatory patients, and some of these adverse reactions may be alleviated if the patient lies down.

Other adverse reactions include euphoria, dysphoria, constipation, skin rash and pruritus. At higher doses, oxycodone has most of the disadvantages of morphine including respiratory depression.

DRUG ABUSE AND DEPENDENCE PERCOCET (oxycodone and acetaminophen) Tablets are a Schedule II controlled substance.

Dxycodone can produce drug dependence and has the potential for being abused. (See WARNINGS.)

DVERDOSAGE Acetaminophen Signs and Symptoms: In acute acetaminophen overdosage, dose-dependent, potentially fatal hepatic necrosis is the most serious adverse effect. Renal tubular necrosis, hypoglycemic come and thrombocytopenia may also occur.

In adults, hepatic toxicity has rarely been reported with acute overdoses of less than 10 grams and fatalities with less than 15 grams. Importantly, young children seem to be more resistant than adults to the hepatotoxic effect of an acetaminophen overdose. Despite this, the measures outlined below should be initiated in any adult or child suspected of having ingested an acetaminophen overdose.

Early symptoms following a potentially hepatotoxic overdose may include: nausea, vomiting, diaphoresis and general malaise. Clinical and laboratory evidence of hepatic toxicity may not be apparent until 48 to 72 hours post-ingestion

Treatment: The stomach should be emptied promptly by lavage or by induction of emesis with syrup of ipecac. Patient's estimates of the quantity of a drug ingested are notoriously unreliable. Therefore, if an acetaminophen overdose is suspected, a serum acetaminophen assay should be obtained as early as possible, but no sooner than four hours following ingestion. Liver function studies should be obtained initially and repeated at 24-hour intervals.

The antidote, N-acetylcysteine, should be administered as early as possible, preferably within 16 hours of the overdose ingestion for optimal results, but in any case, within 24 hours. Following recovery, there are no residual, structural, or functional hepatic ab-

Oxycodone Signs and Symptoms: Serious overdosage with oxycodone is characterized by respiratory depression (a decrease in respiratory rate and/or tidal volume, Cheyne-Stokes respiration, cyanosis), extreme somnolence progressing to stupor or coma, skeletal muscle flaccidity, cold and clammy skin, and sometimes bradycardia and hypotension. In severe overdosage, apnea, circulatory collapse, cardiac arrest and death

Treatment: Primary attention should be given to the reestablishment of adequate respiratory exchange through provision of a patent airway and the institution of assisted or controlled ventilation. The narcotic antagonist naloxone hydrochloride (Narcan®) is a specific antidote against respiratory depression which may result from overdosage or unusual sensitrivity to narcotics, including oxycodone. Therefore, an appropriate dose of naloxone hydrochloride (usual initial adult dose 0.4 mg to 2 mg) should be administered preferably by the intravenous route, and simultaneously with efforts at respiratory resuscitation (see package insert). Since the duration of action of oxycodone may exceed that of the antagonist, the patient should be kept under continued surveillance and repeated doses of the antagonist should be administered as needed to maintain adequate respiration.

An antagonist should not be administered in the absence of clinically significant respiratory or cardiovascular depression. Oxygen, intravenous fluids, vasopressors and other supportive measures should be employed as indicated.

Gastric emptying may be useful in removing unabsorbed drug.

DOSAGE AND ADMINISTRATION Dosage should be adjusted according to the severity of the pain and the response of the patient. It may occasionally be necessary to exceed the usual dosage recommended below in cases of more severe pain or in those patients who have become tolerant to the analgesic effect of narcotics. PERCOCET (oxycodone and acetaminophen tablets) is given orally. The usual adult dosage is one tablet every 6 hours as needed for pain.

HOW SUPPLIED PERCOCET (5 mg oxycodone hydrochloride and 325 mg acetaminophen tablets, USP), supplied as a white tablet, with one face scored and inscribed PERCOCET, and the other inscribed with DuPont name is available in:

Bottles of 100

Bottles of 500

Hospital Blister Pack of 25 (in units of 100)

Store at controlled room temperature

(15°-30°C, 59°-86°F).

DEA Order Form Required.

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Is This Medicine?

Physician Participation in Capital Punishment in North Carolina

Jeffrey Sonis, MD, MPH, and Samuel L. Katz, MD

Editor's note: Controversial topics create opportunities for dialogue and discussion in the Journal. We asked physicians who reviewed the following article to also provide their views on it. Their comments follow.

On June 15, 1994, David Lawson was executed in Raleigh Central Prison for the murder of Wayne Shinn. Lawson inhaled cyanide gas, and the Medical Director of the Division of Prisons monitored his heartbeat by ECG.¹ After the Medical Director determined that the ECG had been flat line for five minutes, he pronounced Lawson dead at 2:18 a.m.² The pronouncement of death provided the signal for Warden Gary Dixon to stop the execution. At 2:19 a.m., Dixon told the execution witnesses, "The judgment of the court has been carried out."³

This process sounds simple, even mechanical, yet it raises important ethical questions about the role of the physician in society. We believe that physician participation in capital punishment is unethical and unprofessional. It should be stopped.

In this article, we first define physician participation in capital punishment and then identify the ways in which North Carolina physicians have participated in recent years. Next, we evaluate the ethical issues from a variety of viewpoints, and finally propose recommendations regarding physician participation in state-sponsored executions.

What Does "Physician Participation" Mean?

Since 1936, North Carolina has used cyanide gas (delivered in a "gas chamber") to execute prisoners sentenced to death. In 1983, the North Carolina legislature enacted a law (General Statute 15-187) permitting persons sentenced to death to choose lethal injection rather than cyanide gas. Six people have been executed in North Carolina since 1983, five by lethal injection and one, David Lawson, by cyanide gas. As required by North

Carolina law (GS 15-190 and 15-192 of Criminal Procedure) physicians participated in each of these executions.⁴

The American Medical Association's Council on Ethical and Judicial Affairs defines physician participation in capital punishment as consisting of any of the following: 1) an action that directly causes the death of the condemned (for example, administering a lethal injection); 2) an action that assists, supervises, or enables another individual to directly cause the death of the condemned (for example, prescribing the drugs necessary for a lethal injection); and 3) an action that could automatically cause an execution to be carried out on a condemned prisoner (for example, determining whether death has occurred during an execution).

AMA definitions mean that the following actions taken prior to an execution also represent physician participation: 1) providing technical advice about execution such as suggesting the types or doses of drugs to be used, or the expected duration of the execution process; 2) prescribing drugs for use in execution; 3) prescribing or administering medications to overcome prisoner resistance to execution; 4) selecting intravenous sites or inserting intravenous catheters for lethal injection; and 5) supervising, consulting with, or training other medical personnel who are involved in the execution process.⁶⁻⁸

The following actions during an execution also constitute physician participation: 1) witnessing the execution in an official capacity as a physician; 2) monitoring the heartbeat by stethoscope or ECG; 3) administering lethal injections; 4) examining the prisoner to determine death (for example, assessing pupillary response); and 5) pronouncing death.⁶⁻⁸

On the other hand, some actions by physicians clearly cannot be labeled as participation in capital punishment even

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though they take place in the context of executions. Prisoners sentenced to death have medical needs, as all people do. Physicians who, at the inmates' request, provide inmates sentenced to death with medical care that is in their best interest and intended to cure or comfort, surely cannot be considered to have participated in the execution process. Performance of a thoracotomy on a condemned prisoner with potentially curable lung cancer is proper medical practice, not participation in capital punishment. Likewise, prescription or administration of tranquilizers, made at the prisoner's request to allay anxiety prior to execution, fulfills the doctor's fundamental duty—to comfort suffering human beings.

It is a bit thornier to apply the AMA definition to psychiatric involvement. Most commentators agree that psychiatric evaluation and testimony regarding a defendant's criminal responsibility or competence to stand trial does not constitute participation in the execution process. Conversely, most argue that psychiatric *treatment* to restore competence does constitute such participation since successful treatment can lead directly to execution. Others say that the issue hinges on the purpose of the treatment and that treating an incompetent prisoner in order to relieve suffering does not represent participation.

There is less consensus about the determination of competence to be executed. Some have argued that this does not constitute participation because such testimony represents only one piece of the evidence used by the judge or jury to pass legal judgment. Most, though, consider determination of fitness for execution similar to other forms of participation since it can lead directly to sentencing a prisoner to death. ^{4,9,10} In the near future the AMA and the American Psychiatric Association are expected to issue guidelines on psychiatric participation in capital punishment.

Ethics of Physician Participation

We believe that physician participation in capital punishment violates two fundamental principles of biomedical ethics, nonmaleficence and beneficence. Nonmaleficence—the obligation to avoid harming others—is a bedrock principle of physician ethics. It is commonly expressed in the maxim "First, do no harm." But a physician obviously inflicts irreparable harm on a person by helping the state to kill that person.

We want to emphasize that merely participating in a process that leads to death does not make an action unethical. In selected circumstances, it is completely appropriate and ethical for physicians to withdraw life-sustaining treatment from the desperately ill even though the action leads to the death of the patient. Participation in capital punishment, however, contributes to the death of otherwise healthy prisoners, against their will. In such cases, physicians have no therapeutic relation with the inmates and are not acting in their best interests. This action can only be interpreted as grievous and permanent harm. Loewy rightly points out that even under the unusual circumstance in which a prisoner requests execution, a physician would be

harming the prisoner by not acting in the prisoner's best interests.¹²

Further, physician participation in capital punishment damages trust in physicians. Patients come to us with the expectation that we will use our medical knowledge and skill to help them. Our ability to obtain accurate histories and to form therapeutic alliances depends fundamentally on our patients' ability to trust us. Can we expect patients to trust us if they know we are using our medical knowledge and skills to help the state kill people?

This is not solely a theoretical issue. North Carolina law (GS 15-190 and 15-192) requires that "a surgeon or physician of the penitentiary" witness the execution and pronounce the death of the prisoner being executed. At the very least, other prisoners will lose some confidence in physicians since they will not be certain whether physicians who subsequently treat them are acting in their best interests or in the interests of the state. Suppose, for instance, that an inmate at Raleigh Central Prison developed severe chest pain the day after David Lawson had been executed. Wouldn't it be understandable if this inmate had some doubt about whether the physicians were doing everything in their power to help him? Isn't it just as clear that doubts like these strike at the heart of the doctor-patient relationship?

Some have suggested using physicians from outside the prison system to avoid the conflict. This "solution" resolves the specific problem of loss of trust in prison physicians but misses the fundamental issue: all patients suffer and all doctors suffer when the role of the doctor is transformed from healer to executioner.

In addition to nonmaleficence, physicians have an equally important obligation of beneficence, the active promotion of the welfare of others. ¹¹ Indeed, the fundamental purpose of medicine is to relieve suffering and prolong life when there is a reasonable hope of doing so. Since executions induce suffering and terminate the life of a person who is not terminally ill, physician participation in capital punishment violates this basic ethical principle of medical practice.

We are not alone in our views. Every major medical organization in the United States and abroad that has considered the issue has concluded that physician participation in capital punishment is unethical. The AMA, the American College of Physicians, the World Medical Association, national medical associations in more than 19 countries, and the North Carolina Medical Society have all proscribed physician participation in capital punishment.⁴

Opposing Views

A variety of arguments have been offered to support physician participation in executions. Some have suggested that monitoring vital signs and pronouncing death is not the same as actively assisting the execution.¹³ We believe this distinction to be false. The execution process continues until the physician indicates

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that the heart has stopped beating. The absence of an indication of death from the physician is a tacit order to continue the execution. In fact, on several occasions in other states, the execution process has been restarted after being stopped because a physician indicated that the prisoner was not yet dead. By providing an implicit order to continue the execution, a physician who monitors an ECG or other vital signs is a direct, active participant in execution.

Others have argued that when an execution is inevitable, physician involvement can reduce the suffering of the condemned prisoner and is therefore consistent with ethical physician practice. 14,15 It is more humane, they argue, to help the state execute a prisoner by lethal injection than allowing him or her to suffer an agonizing death by cyanide gas. It is probably true that lethal injection causes less suffering than cyanide gas (or other methods of execution), but that does not make it acceptable or ethical for physicians to help carry out the execution. We offer the following reasons: 1) A review of actual executions makes it clear that executions are designed to minimize the unpleasantness for the participants and witnesses, not to reduce the suffering of the condemned. Warden Dixon reported that David Lawson's face was covered by a leather mask to protect the witnesses from seeing "a horrible sight," and to enable the execution to be carried out with "dignity and humanity." 2) The involvement of physicians lends an air of medical legitimacy to a non-medical process, but does not reduce suffering. None of us learned how to kill someone using cyanide gas or toxic doses of drugs in medical school; executions are not medical procedures. Physicians are present at executions to give an appearance of humanity, but not to lessen the suffering of the person being executed. 3) Even if physician participation does reduce the suffering of the prisoner, this is outweighed by the permanent harm it inflicts and the damage suffered by the entire medical profession.

Finally, some argue that physicians who are not involved in capital punishment should not be concerned about other physicians' participation. However, all physicians have a strong professional interest in preventing their medical colleagues from engaging in unethical behavior, such as fraud, drug abuse, or sexual relations with patients. Similarly, all physicians have a strong interest in preventing any physician from participating in executions. Ethical violations by physicians damage society at large, and sully the reputation of the profession as a whole.

Our Recommendations

Since we are physicians, we have addressed only physician participation in capital punishment in this article. However, there are strong arguments against involvement of other health professionals as well. The American Nurses Association declared nurse participation in executions unethical, ¹⁶ and the American Public Health Association issued a similar policy statement for "health personnel" in general. ¹⁷ We encourage all health professionals—physician assistants, nurse practitioners, pharmacists, medical technicians, and others—to evaluate the ethics of participation by their profession in capital punishment.

We recommend several measures to eliminate physician participation in capital punishment in North Carolina. First, we encourage all North Carolina medical schools to include the issue of physician participation in courses on medical ethics. Second, we urge all North Carolina physician societies to remind their members that physician participation in executions is unethical. The North Carolina Medical Society has declared that such participation in capital punishment is unethical.18 Other societies should follow suit. Professional organizations should impose sanctions on members who violate their standards. Third, we encourage the North Carolina Medical Society to support all Department of Corrections physicians who refuse to participate in executions and thereby risk departmental sanctions. Fourth, since physician participation is a serious violation of prevailing professional ethics,6 we urge the Board of Medical Examiners of North Carolina to consider any form of participation as grounds for disciplinary actions. Fifth, we urge the North Carolina legislature to adopt legislation that would eliminate physician involvement in capital punishment.

Physicians should comfort and heal. Let us end the alliance between doctors and executioners.

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Continued

Commentary by J. Leonard Goldner, MD

Dr. Goldner is James B. Duke Professor of Orthopaedic Surgery Emeritus, Duke University Medical Center, Durham.

I offer these comments from the perspective of a moderator of a debate rather than as a personal opinion for or against the issue of capital punishment. It is clear that the authors are opposed to capital punishment, so it is not surprising that they are against the participation of a physician or any other medically trained person in any aspect of a lawful execution.

Arguments about these matters have ambiguity, irony, and tragedy. Idealists favor redemption of the guilty and pragmatists favor retribution. It depends on whether your philosophy is "an eye for an eye" or "turn the other cheek." The conundrums are many. How would the authors answer the question, "If you saw someone killing with a machine gun would you kill the killer to stop the killing?" Was the person who sold the killer the Uzi an accessory to the murder? William Raspberry, Washington, DC, columnist, recently described a woman who could not get a legal abortion because she did not have the funds. In desperation, she shot herself in the abdomen, and the fetus eventually died. She was charged in Florida with murder even though she could have had a legal abortion if she had had the funds. Can we determine the ethics, legality, and morality of that situation?

Drs. Sonis and Katz say that the relationship between doctors and prisoner-patients (other than the one to be executed) suffers whenever a physician participates in a legal execution. Is there any documented evidence that this is so? How would one get such evidence since prisoners, if polled, would have a conflict of interest and their statements would be biased? The authors state that the current execution procedure is not in the inmate's best interest. True, but the authors do not address the other question, "What is society's best interest?" What was the best interest of the victim before the premeditated murder? Furthermore, who decides the definition of "best interest?" Were it possible to determine (by behavioral and genetic testing) whether or not a convicted prisoner would kill again, would that affect our acceptance of capital punishment?

The AMA Council on Ethical and Judicial Affairs argues that when state law requires that a physician be present at an execution, and when the participating physician attends voluntarily, the action is ethical. However, if a physician participates, not because the law requires it but solely at the request of the prison system, the act is unethical. Drs. Sonis and Katz believe that the physician's actions in either case are unethical. Is it true that physicians' actions are ethical if allowed by law, but unethical if not? War crimes trials established that those who committed genocide were guilty even when they were "following the legal orders of their superiors." Thus, laws allowing capital punishment do not necessarily make a physician's actions ethical, but do they confer on an individual physician the civil right to participate if requested?

The AMA committee has nine members. It arrived at a consensus about participation in capital punishment that was accepted by the House of Delegates. The same AMA committee, however, took a neutral stance on abortion. The numerous questions related to abortion have not yet been answered to everyone's satisfaction.

Finally, it seems to me hardly the same to compare a physician's legal and voluntary participation in the execution of a prisoner convicted of premeditated murder and a physician's involvement in fraud, drug abuse, or sexual relations with patients. Are the actions of individual physicians who participate under sanction of law really damaging society at large? Do they really interfere with the reputation of the medical profession as a whole? We need more data, information, and debate before the question is answered. At present, I believe that the authors' recommendation of sanction by the State Medical Board is premature.

Having said all this, I recently read a newspaper article about a prisoner who, after five years on death row, was exonerated by a new confession from a witness who had committed perjury previously. Now what?

Commentary by Walter L. Floyd, MD

Dr. Floyd is Professor of Medicine, Division of Cardiology, Duke University Medical Center, Durham.

When I received Drs. Sonis' and Katz's article for review, I realized that, even though I had recently read John Grisham's novel, *The Chamber*, and felt my blood run cold at the description of events transpiring before, during, and after a prisoner's execution in the gas chamber, I had not thought as deeply about the subject as I should have. I was familiar with the AMA's stand on physician participation in executions, and I have realized throughout all four decades of my professional life that I could never witness, much less participate in, an execution. So, when I read the paper, my first reaction was "Bully!" for the

authors, and I planned to write my evaluation accordingly. However, before I could write that hasty review, I went on vacation. With time to give the subject deeper thought, my views have changed.

The rise of violent crime in our society and the pervasive fear that we or our loved ones will become victims have increased the demand for more severe and appropriate punishment of criminals. The majority of our citizens condone capital punishment, and it has been upheld repeatedly by the courts, including the Supreme Court. The current political theme of

"getting tough on criminals" means that capital punishment probably will escalate in the future. Thus, whether physicians are present at executions or not, the practice will continue. The expertise of the physician in defining death is not necessary to the execution process. Indeed, the physician is there by legislative mandate and the function served by the physician could either be ignored or performed by individuals with little or no medical training.

If the physician is excluded when the condemned "walks the last mile," who is there to act primarily in the prisoner's interest? The minister, priest, or rabbi may tend to his or her spiritual needs, and a lawyer has the right to be there to serve his or her legal interests to the last minute. Other than these individuals, no one is there primarily in the prisoner's interest, to assure him or her that the execution is carried out in as swift and humane manner as possible. Certainly, neither lawyer or minister have the expertise to determine comfort measures or the point at which the execution may be terminated without fear of having to reinstitute it. All other individuals involved are agents of the state, representatives of the news media, and family members of the victim, many of whom—motivated by hate and malice—may prefer to see a prolonged and painful dying process.

In the course of their careers, physicians are exposed to patients whose values, demeanor, lifestyle, or acts they consider repugnant. Most of us are able to set aside our attitudes and treat such individuals with concern and compassion; we resist the temptation to offer inadequate pain relief or other indigni-

ties. Typical of those who dissociate anger and animosity from therapeutic efforts are military physicians who treat the wounded enemy, even after they have observed the carnage the enemy has imposed on others.

Provided the physician is not an agent of the state (as he or she is now), could the physician not serve, as the minister or lawyer do, by acting solely in the interest of the condemned to assure execution in the most medically humane manner possible? To deny physicians such a role is to risk introducing even more brutality into the execution process. Part of the reason that David Lawson was executed rather than imprisoned for life was the unusually brutal manner in which he injured and executed his victims. It is not necessary for the justice system to increase the brutality of the execution mandated by the people.

Rather than banning physicians from executions, perhaps we should assure that they be there solely in the interest of the condemned. Most certainly, the physician, like the lawyer and minister, should have no obligation to the state. What measures or procedures the physician may take to meet the responsibility to the prisoner should be studied. Perhaps our professional societies could arrive at recommendations that would allow motivated physicians to conduct themselves in an ethically and morally acceptable manner. When all appeal has been exhausted, the condemned is on an irreversible path to death. Should our profession not provide comfort care for such an individual in the same way we do for our hopelessly ill patients?

Commentary by William B. Herring, MD

Dr. Herring is Professor of Medicine, Emeritus, UNC School of Medicine, Chapel Hill.

Drs. Sonis and Katz directly and clearly address a discomfiting issue. They carefully define physician participation in capital punishment and then marshal their arguments against it in a manner that brooks no debate. They cautiously limit their discussion to physician participation in capital punishment, but the vigor of their arguments and the militancy of their recommendations leave little doubt as to their position on the broader issue of capital punishment in general. Indeed, even the toleration of capital punishment would be inconsistent with their views that physicians should not merely eschew participation but take rigorous, if not extreme, measures to ensure that no colleague or other health professional take part in it. Although state law requires that a physician witness an execution and pronounce death, the authors forcefully propose that physicians-even those employed by the state-shun these prescribed duties. They justify this is as necessary to enable doctors to administer humane care when required, with clean hands, so to speak.

Regardless of one's views on capital punishment, the issue raised by the authors could be easily resolved by changing the

law. The determination of death does not require the skills or judgment of a physician; in most hospitals and nursing homes nurses pronounce death. But for the solemnity of the pronouncement and its significance to the family, it could be performed as well by any staff member. The authors are consistent, however, in that they oppose participation in capital punishment by any health professional. We might propose that those who cause the death be responsible for determining that death has occurred. This onerous duty would thus fall to the prison staff, the warden being ultimately responsible, and would happen by default if the law were changed to delete any requirement that a health professional pronounce death.

A change in the law might be feasible if it had full support by the health professional organizations in North Carolina. Having raised the issue, perhaps Drs. Sonis and Katz would take the lead in effecting a change. They would surely have strong support from physicians who, like myself, would not participate in an execution but whose position on the broader issue of capital punishment is less certain.

Continued

Commentary by William G. Porter, MD

Dr. Porter is with the Department of Medicine, Carolinas Medical Center, Charlotte.

Capital punishment has been abandoned by most civilized countries, yet it enjoys wide popular support in the US. No candidate for state or national office can safely oppose it. The Supreme Court has upheld the constitutionality of the death penalty despite evidence that it is unequally applied—that blacks and defendants represented poorly by the legal profession are more likely than others to be put to death.

As Drs. Sonis and Katz point out, physicians should not participate in executions. Such killing is inimical to the fundamental goals and purposes of medicine. How can physicians embrace the ethical principles of autonomy, nonmaleficence, and justice, the moral rule against killing, and still use their professional expertise to put other human beings involuntarily to death? Yet clearly, they do, and by so doing they put

themselves and their profession in an ethically indefensible position.

The rights and obligations of individuals lie at the core of Western philosophy; they are central to Western medicine. If American physicians fail to honor these values, even for those condemned to die, they could find themselves slipping toward the behavior of repressive regimes such as in China, where executed prisoners are a source of organ transplants and physicians sometimes harvest prisoners' organs without consent prior to execution. At the very least, organized medicine should, through its ethical codes, discourage physician participation in executions and should sanction those who disregard this ethical mandate.

Commentary by Francis A. Neelon, MD

Dr. Neelon is Journal Editor.

I have heard before the arguments about physician participation in capital punishment put forth by Drs. Sonis and Katz; I remain unswayed. The opponents of physician participation use three kinds of argument to justify their position:

1. An Ethical Argument. Drs. Sonis and Katz assert that two great principles ("nonmaleficence" and "beneficence") guide the actions of doctors. These principles make it wrong for doctors to harm or kill patients who come seeking help. I certainly agree with the principles, but do not think they apply to cases of capital punishment where the doctor is not the agent of the condemned but, rather, the lawful agent of the state. There are instances—determination of disability, reporting of child abuse, disclosure of criminal intentions—in which doctors are obliged to act as agents of the state, sometimes to the detriment of patients who have actually come to them for help (which is not the case with condemned prisoners). The usual rules of the medical encounter do not apply in any of these situations; much less should they apply when the state employs the services of the physician, not the condemned person.

We all (that is, all citizens of the state) accede to the legality of capital punishment. That being so, I keep waiting for someone to clearly articulate a reason why doctors should not do what others are permitted to do. Is not everyone—industrialists, lawyers, police officers, wardens, no less than doctors—bound, too, by nonmaleficence and beneficence? Unless we want to argue that no one should participate in capital punishment, I find it hard to see why doctors should not.

2. A Social Argument. This proposition can be reduced to variations on the theme that "everybody else opposes physician participation" and, therefore, so should we. Psychiatrists, nurses,

the public health association, the North Carolina Medical Society oppose participation and so should we. The argument that "everybody else is doing it" (or not doing it) seems to me the refuge of the morally bankrupt. Those other groups generally base their positions on fuzzy ethical reasoning, just like doctors do.

3. A Public-Relations Argument. This supposes that physician participation will lead to a catastrophe of confidence about doctors in general. Drs. Sonis and Katz say that it will "damage...the medical profession as a whole" and "sully the reputation of the profession as a whole." I doubt that. I lived through similar arguments about the effects of elective abortion. As far as I can tell, the legalization and popularization of abortion has provided a livelihood for some doctors, but it has not ruined the reputation of Medicine.

Despite my reluctance to make doctors a special case, I am open to arguments that capital punishment should be abolished entirely. Were that so, I could agree that doctors should not participate. Until that time, I believe that doctors should not mount their moral high-horse, setting their actions somehow above their fellow citizens. Until the time that it is wrong for any citizen to participate in an execution, I say let doctors participate if they so choose. I hope that the Board of Medical Examiners will seek no sanctions, that the Medical Society will reconsider its opposition to the lawful (indeed, presently mandatory) participation by physicians in the legal execution of persons judged guilty of crimes punishable by death, and that Drs. Sonis and Katz will direct their energies toward the legislature but leave their colleagues alone.



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Treatment of Isolated Laryngeal Blastomycosis with Ketoconazole

Photographic Documentation of a Successful Case

David L. Witsell, MD, Wendell G. Yarbrough, MD, C. Gaelyn Garrett, MD, and Mark C. Weissler, MD

In 1894, Gilchrist¹ first described human infection with *Blastomyces dermatitidis* (which he called "Protozoan dermatitis"). Since then, the otolaryngologic literature has carried reports of unusual cases of isolated laryngeal infection due to *Blastomyces*. This dimorphic fungus is endemic in North America, particularly the central and southern regions. The incidence of infection is estimated at 0.4 - 0.7 cases per 100,000.² Because laryngeal blastomycosis bears a clinical resemblance to squamous cell carcinoma,³⁻⁷ there are reports of mistaken diagnosis in which patients underwent inappropriate surgical or radiation therapy.⁵

Blastomycosis used to be treated with Amphotericin B, given intravenously to a total dose of approximately two grams. In 1978, ketoconazole was shown to have significant *in vitro* activity against this organism and, in 1985, the National Institute of Allergy and Infectious Disease Mycosis Study Group showed that oral ketoconazole was effective in the treatment of blastomycosis. A low incidence of side effects makes ketoconazole ideal for the treatment of localized disease. The currently recommended treatment of non-disseminated blastomycosis is 400 mg of ketoconazole twice daily for six months.

During the past nine years 16 patients have been treated for blastomycosis at the University of North Carolina Hospitals (UNCH). In one of those patients who had isolated laryngeal blastomycosis, we photographically documented the regression of disease during treatment with oral ketoconazole. The series of photographs graphically depicts complete resolution of his laryngeal blastomycosis.

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Our Patient

A 78-year-old man, a tobacco farmer of African-American descent, was referred to UNCH because of progressive hoarseness for one year. During the preceding year the patient had twice undergone laryngoscopy and biopsy of what appeared to be squamous cell carcinoma of the larynx. The biopsy specimens showed no carcinoma but only "hyperkeratosis with chronic inflammation."

On our evaluation at UNCH, the patient was severely hoarse. His review of systems was negative except for the hoarseness, which had had an insidious onset and was not associated with shortness of breath. The patient did not smoke cigarettes but did occasionally dip snuff. He did not abuse alcohol.

Through the flexible laryngoscope, we noted the left true vocal cord to be grossly thickened and granular just

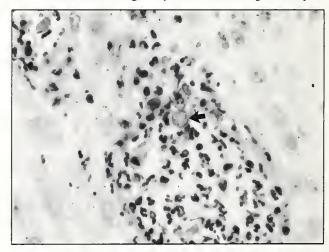


Fig 1: Biopsy specimen from the larynx. Broad-based budding yeast (at arrow) are seen adjacent to granulomatous inflammation.









anterior to the vocal process; the right true vocal cord was thickened and erythematous. Both cords moved briskly. There was no cervical adenopathy and the remainder of the exam was unremarkable. A chest radiograph was clear; laboratory studies were normal.

The patient underwent microscope-directed laryngoscopy with CO₂ laser biopsy. The pathologic specimen showed typical, broad-based, budding yeast with pseudoepitheliomatous hyperplasia consistent with blastomycosis (Fig. 1, previous page). Cultures of the biopsy specimen grew out *Blastomyces dermatitidis*. He was treated with ketoconazole 400 mg twice daily for six months.

Intraoperative photographs were taken using a rigid quartz rod attached to an Olympus 35 mm camera with Kodak Ectachrome film ASA 400. Subsequent photographs were taken in the clinic using a standard videostroboscopy unit and nasopharyngoscope.

Discussion

Blastomycosis is most often encountered in the central and southern United States but, since many states do not require that fungal infections be reported, the true incidence of the disease is not known. Isolated laryngeal blastomycosis certainly appears to be an uncommon manifestation of an uncommon disease.

Because blastomycosis occurs most often in agricultural regions (an ecological niche with a high incidence of smoking and alcohol use), it can be mistaken for squamous cell carcinoma.² Furthermore, confusion about and lack of specificity in serological testing for blastomycosis means that the initial diagnosis is usually a clinico-pathologic one.¹¹ Clinicians should consider blastomycosis as an alternative diagnosis whenever there is any doubt about the pathological nature of a lesion suspected to be carcinoma, as in our case.

Figure 2 shows the operative view during direct laryngoscopy. Notable findings include: 1) thickening of the true vocal cords (greater on the right than left) extending to the anterior commissure and 2) an erythematous and friable mucosa. One month after beginning ketoconazole, videostroboscopic exam revealed less edema of the true vocal cords and irregular nodules on the right mid-cord (Fig. 3). At three months, the right true vocal cord nodules had decreased in size (Fig. 4). After completing six months of ketoconazole, the patient's voice was much improved and examination of the larynx revealed no abnormalities of the glottic mucosa (Fig. 5). He has remained free of recurrent blastomycosis for two years.

In immunocompromised individuals, *Blastomyces* can cause systemic disease that can be fatal. Systemic blastomycosis is appropriately treated only with Amphotericin B.^{11,12} In immunocompetent individuals with isolated disease, ketoconazole offers effective treatment without the complications associated with Amphotericin B. Our patient's case and the response of ketoconazole documented by our photographs support the use of ketoconazole for isolated laryngeal blastomycosis.

Figs 2-5 (left, top to bottom): Fig 2—Intraoperative view of the patient at presentation during laryngoscopy showing the friable, thickened mucosa of the vocal folds (at arrow). Fig 3—Bilateral true vocal cords after one month of treatment with ketoconazole. Irregular nodules are seen on the right true vocal cord. Fig 4—After three months of treatment with ketoconazole. Decreased size of the vocal cord nodule is seen (at arrow). Fig 5—After completion of six months of ketoconazole. No mucosal abnormalities are noted.

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Intermittent Ureteropelvic Junction Obstruction in the Adult

Luis M. Perez, MD, J. Brantley Thrasher, MD, John L. Weinerth, MD, and E. Everett Anderson, MD

Intermittent ureteropelvic junction obstruction is an important, although uncommon, cause of abdominal pain. The diagnosis may be missed in dehydrated or asymptomatic patients. The keys to accurate diagnosis are aggressive hydration and diuresis and radiologic testing (renogram or intravenous urogram) during painful crisis.

Intermittent hydronephrosis has been recognized for more than 125 years. ^{1,2} So-called "Dietl's crisis" was first described by Josef Dietl in 1864 as episodic, colicky upper abdominal pain, nausea, and vomiting associated with hydronephrosis. ¹ Le Bazy recognized that diuresis dilates the renal pelvis in 1914, ³ but it was not until 1950 that Covington and Reeser used hydration-induced diuresis to diagnose intermittent ureteropelvic junction (UPJ) obstruction. ^{4,7} Currently, pharmacological diuresis with furosemide is used in place of hydration. ^{8,9} In 1956 Nesbit recognized that UPJ obstruction could be diagnosed more accurately when radiological studies were performed in acutely symptomatic rather than asymptomatic patients. ⁵

In this paper, we report our experience with two adult patients with intermittent UPJ obstruction and discuss the possible etiologies and means of diagnosing this entity.

Case Reports

Patient One: In December 1989, a 38-year-old woman with no prior urological history developed acute left flank discomfort and nausea. The patient was evaluated elsewhere and noted to be slightly dehydrated. Urinalysis revealed microhematuria. An intravenous urogram (IVU) showed a mildly dilated left renal pelvis. The patient's symptoms remitted totally and she was asymptomatic until three months later when similar symp-

toms developed. An IVU performed while the patient was symptomatic revealed possible left UPJ obstruction; as before, her symptoms dissipated within six hours. She was referred to our institution.

When evaluated a few days later, she denied any history of kidney stones, urinary tract infections, fever, chills, voiding dysfunction, or gross hematuria. Physical examination, urinalysis, and cystourethroscopy were normal. Retrograde pyelography revealed that the left ureter inserted high into the renal pelvis; the calices were delicate and there was no evidence of obstruction. A technetium-99m diethylene triaminepentaacetic acid (Tc-99m DTPA) renogram showed normal bilateral perfusion, a glomerular filtration rate of 104 mL/min, bilaterally equal renal function, and prompt drainage after intravenous administration of 45 mg of furosemide.

The patient remained asymptomatic for two months, then again developed recurrent left flank pain and nausea. Physical examination revealed left flank tenderness. The urinalysis, hematocrit, white blood count, blood urea nitrogen, and serum creatinine were normal. An IVU performed while she was symptomatic revealed a totally normal left collecting system (Fig. 1A, at right). After the post-void film was obtained, she was given 20 mg of furosemide intravenously. She developed progressive left pyelocaliectasis with apparent radiologic UPJ obstruction (Fig. 1B, at right) and increased left flank pain and nausea (Dietl's crisis).

With the diagnosis established, we performed dismembered pyeloplasty. Pathological examination revealed luminal stenosis (0.1 cm) of the UPJ, which was surrounded by delicate fibrovascular connective tissue. Fourteen weeks after surgery, an IVU showed improved but residual slightleft pyelocaliectasis (Fig. 1C, at right). The patient remains asymptomatic two years after surgery.

Patient Two: A 54-year-old obese woman presented in October 1989, with a seven-year history of progressively worsening, intermittent, cramping right flank pain that radiated to the groin. The pain was usually nocturnal and each episode lasted 45

At the time of this writing, Dr. Perez was a surgical resident and Dr. Thrasher was a fellow in urologic oncology at Duke University Medical Center. Drs. Weinerth and Anderson are with the Division of Urology, Department of Surgery, Box 3124, DUMC, Durham 27710.



Fig 1A (above): IVU showing delicate left calices without evidence of obstruction.

minutes. She had undergone a right pyelolithotomy 10 years earlier, and afterward, multiple IVUs had shown residual mild right pyelocaliectasis but no obstruction or calculi.

Physical examination was unremarkable, and urinalysis and serum creatinine were normal. A right retrograde pyelogram showed that the right ureter inserted high into the renal pelvis; there was minimal UPJ narrowing and prompt drainage. Under furosemide diuresis, a Tc-99m DTPA renogram showed normal blood flow bilaterally, a glomerular filtration rate of 43 mL/min, bilaterally equal function, and no evidence of obstruction (Fig. 2A, next page).

Nine months later she had a normal blood pressure and urinalysis, but the serum creatinine had risen to 1.3 mg/dL. On IVU, filling was delayed up to three hours and there was progressive pyelocaliectasis suggestive of high-grade obstruction at the UPJ. A furosemide-Tc-99m DTPA renogram showed significant impairment of right renal perfusion and function. The calculated glomerular filtration rate was 52 mL/min, but the right kidney contributed only 32% of function and left, 68% (Fig. 2B, next page). We carried out a right dismembered pyeloplasty after which her serum creatinine returned to normal (0.9 mg/dL). Pathological examination revealed fibrosis of the UPJ with focal chronic inflammation of renal cortex and capsule. A furosemide-IVU performed 12 weeks after surgery showed residual pyelocaliectasis but no obstruction. The patient remains asymptomatic.





Fig 1B (top): Diuretic-assisted IVU revealing severe left pyelocaliectasis during painful crisis. Fig 1C (bottom): Left collecting system after dismembered pyeloplasty revealing an open UPJ and filling of the proximal ureter.

Discussion

Various reasons are given for the failure to detect intermittent UPJ obstruction except at the time of Dietl's crisis. The most likely explanation is insufficient hydration or diuretic preparation of the patient. Under ordinary conditions, the lumen of even a narrowed UPJ may be large enough to allow the escape of urine. Diuresis may stress the system sufficiently to reveal borderline luminal obstruction.

In 1965, Hutch and Tanagho showed, in dogs, that a unilateral urine flow of greater than 45 mL/h across a UPJ exceeded the emptying capacity of the system and caused a rise in intra-ureteral pressure. Genereux and Monks proposed that, since the capacity of the average renal pelvis is approximately 50 mL, a urine output of 75 mL/h would be needed to detect obstruction in an affected kidney. In 1986, Koff and associates emphasized the need to expand the renal pelvis volume in order to elicit an underlying obstruction.

In general we can expect either furosemideaugmented intravenous urography or renography to provide excellent accuracy in detecting intermittent UPJ obstruction in adult patients with pyelocaliectasis. 14,15 However, a handful of reports document falsely negative radiological studies of UPJ obstruction in adults. 16-20 In these cases the studies became positive if the patient was restudied when symptomatic or when adequate furosemide-induced diuresis was used (sometimes giving repeated doses of furosemide or administering it before the imaging study).

Some investigators have found that the timing of diuretic administration in relation to renography is important. 19,21 English and associates proposed that, since the peak effect of intravenous furosemide occurs several minutes after dosing, furosemide should be given 15 minutes before rather than 15-20 minutes after the start of renography as is "standard." They used such a protocol to more accurately detect obstruction in a group of 35 hydronephrotic kidneys. 19

Renal pelvis urodynamic studies (pressure-flow studies) were popularized by Whitaker²² and performed extensively in the past. Some have questioned whether the Whitaker test is a "gold standard" for determining UPJ obstruction.¹³ Direct comparisons of pressure-flow studies and diuretic renography in adults show comparable accuracy in diagnosing UPJ obstruction.^{23,24} Many investigators now recommend diuretic-assisted renogram or IVU in lieu of the more invasive Whitaker test.¹⁰

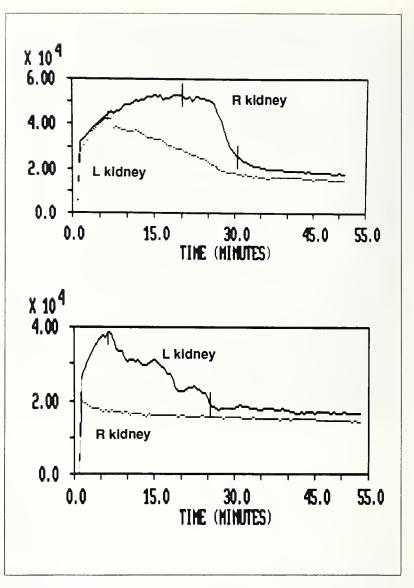


Fig 2A (top): Diuretic-assisted Tc-99m DTPA renography (60 mg of furosemide given at 23 minutes) showing slight delay of excretion of isotope on right, but without evidence of obstruction. 2B (bottom): Same study nine months later revealing significantly decreased left renal perfusion and function.

Our first patient demonstrates the classic story of primary intermittent UPJ obstruction. In contrast, our second patient had prior surgery for a renal pelvis stone and the initial diuretic-assisted Tc-99m DTPA scan showed bilaterally equal, although decreased, renal function. Only when her UPJ stenosis reached critical size did the right/left difference in renal function become clear. Renography is not a very reliable way to detect obstruction in patients with decreased renal function, but it is a useful and non-invasive method of detecting unilateral deterioration in function and probable obstruction.

Most authorities believe that, in the absence of a presently available "gold standard" for determining UPJ obstruction, 10,13,24 non-invasive studies such as diuretic urography and renography should be the first line of diagnostic testing, particularly during painful crisis. Adequate hydration and

diuresis of the patient add to the accuracy of these radiologic studies. The literature does not specify whether the diuretic-assisted IVU or renogram better detects ureteral obstruction, but the renogram may provide more objective data in equivocal cases.⁹

Pressure-flow studies such as the Whitaker test, may be worthwhile if there is a strong clinical suspicion of UPJ obstruc-

tion and the urogram and renogram are indeterminate in maximally hydrated and diuresed patients or those who, because of decreased renal function, cannot achieve an adequate diuresis. In most cases, such as ours reported here, diuretic-assisted urography and renography provide an excellent method for diagnosis and non-invasive follow-up of differential function and renal perfusion.

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Silent Night, Blurry Night

J. Stuart McCracken, MD

I had known for some time that it was my turn to be on call for the emergency room for the Christmas week. Christmas Eve had been busy—for an ophthalmologist. I had seen one of my post-ops that morning, an intensive care unit consult (head trauma from an auto accident) in the afternoon and one of my own patients with a corneal erosion in the late afternoon. That evening I went with my family to the Christmas Eve service at our church, thinking that things would be quiet at least for the hour of scheduled carols by candlelight.

Not so. The pager went off not 15 minutes into the service. Call the emergency room. The phone was all the way on the other side of the church.

The PA from the ER was brief and accurate and appropriately puzzled. Two days ago a healthy 22-year-old man had been poked in his left eye with a finger. It had been getting better without medical treatment until today, when he had some retrobulbar aching and relatively sudden loss of vision. The eye looked very red and, although the visual acuity in his right eye was 20/15, he couldn't see the 20/400 "E" in the exam room with the left. Did I need to see him? I said I would be there in about 30 minutes and returned to the sanctuary where I prevented our four-year-old twins from setting the pews ablaze with their candles. Luckily my wife and I had come in separate cars; I left for the ER after the service, arriving there even earlier than I had promised.

The patient's appearance was exactly as the PA had described. I noted that the left pupil was fixed and constricted, but he denied any drug use. On slit lamp exam there was no evidence of iritis, which I had assumed would be the cause of his visual blurring. He did not have any gross cuts of the visual fields to confrontation, and he could "see" everything in the room—it was just "blurry." The anterior chamber was very deep, but there were no corneal abnormalities to explain his decreased vision. Intraocular pressure was 11 mm of mercury, well within normal limits.

I dilated his eye with cyclopentolate and tropicamide, thinking that if there were some residual traumatic iritis, the

cyclopentolate would at least make him more comfortable. There was a subconjunctival hemorrhage from the original trauma which had prevented any evaluation of ciliary flush. I felt that I must have missed a subtle uveitis.

While his pupil was dilating, I shot the breeze with the ER physician. We scoured our brains for the cause of the patient's symptoms. Traumatic loss of vision usually occurs soon after an injury, not suddenly 48 hours later. If there had been a retinal detachment or a vascular cause of decreased vision (vitreous hemorrhage, retinal artery occlusion), then he wouldn't have had the pain that he described. I drew an absolute blank on a differential diagnosis for his fixed and constricted pupil—trauma usually produces a relatively fixed and dilated pupil. I will admit I also thought about all the things I was supposed to do before the kids awoke the next morning.

After 20 minutes, the patient said that he was more comfortable and could see better. My fundus exam revealed no inflammation, no retinal detachment and a normal-appearing macula. There was an area of Berlin's edema in the far periphery, probably from the trauma two days ago. I used the phoroptor to carry out a rough refraction, getting 20/25 acuity with best correction.

I was relieved to find no severe problems going on. I crumpled up the topical steroid prescription I had written before the dilated exam, suggesting instead that he use artificial tears to relieve the surface irritation. He said, "You mean like drops my grandmother used after her eye surgery?"

My ears perked up. "Maybe," I said, "what kind of surgery did she have?"

"I don't know, but I borrowed some of the drops today to get my eye better. Here they are." He reached into his pants pocket and produced a bottle of eye drops. Even before I saw the green bottle top, I knew what was inside. Pilocarpine 4%.

A direct-acting parasympathomimetic drug, pilocarpine has been used for more than a century to treat glaucoma. Until the introduction of topical beta-blocking agents over a decade ago, it was the medication most commonly used to lower intraocular pressure. It is still used and is probably the least expensive preparation available.

Pilocarpine causes contraction of the ciliary muscle, which

Dr. McCracken is a physician with offices at 2609 N. Duke St., #802, Durham 27704.

is attached to the trabecular meshwork and to the scleral spur. This increases the aqueous outflow. Incidentally, pilocarpine causes the pupil to constrict, but miosis doesn't affect aqueous outflow since the iris is not directly attached to the trabecular meshwork. Ciliary muscle contraction also produces thickening of the lens of the eye, which is how an eye focuses on an object up close. This is "a dose-related response, averaging 0.11 mm increased thickness with 1% pilocarpine in 20-year-old volunteers and 0.39 mm with 4% pilocarpine. This lens change is, of course, the basis of the myopia induced by pilocarpine. In a young eye, this drug-induced accommodation may amount to several diopters, cannot be relaxed voluntarily, and therefore may cause myopia of several hours duration." P285

Anyone who has ever started patients on pilocarpine will tell you that they complain not only of blurred vision within an hour of a dose but also of a dull aching—usually over the brow—stemming from ciliary muscle spasm. This patient's acuity improved with cycloplegia because his accommodative spasm lessened. When I gave him a correction for myopia, his acuity returned to normal. We had been misled by the history and the finding of severely decreased visual acuity.

Would I have not seen this patient had I known he had used pilocarpine? Would I have dilated him, knowing that fact? Of course I would have done both, as would anyone who did not know the patient or the nature of the original trauma. As I walked out of the exam room I told the physician in charge, "The key to the diagnosis of this patient's eye problem was in his left front pants pocket!"

Reference

1 Havener WH. Ocular Pharmacology, St. Louis: Mosby, 1978.

Letters to the Editor

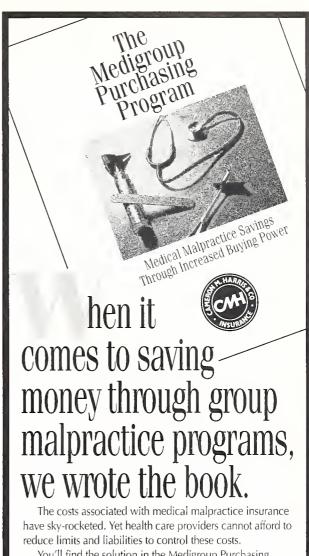
continued from page 576

to see it featured in the Journal (NC Med J 1994;55:549-52).

In my work as a neurologist and psychiatrist, I have found Professor Price's book to be a great aid to my patients in helping them understand the psychological and physical implications of severe neurological disease. I personally thought the book a poignant reminder that, despite tremendous advances in medicine during my 34-year career, the human element in the doctorpatient relationship has not changed.

I recently examined a young ICU nurse from our hospital. An MRI quickly confirmed that she had a large brain tumor. I knew from experience what she was going to have to cope with and related in general terms the outline for the future. At the time I was certain that she did not fully realize the impact of this catastrophe. After making an appointment for her to see Dr. Allan Friedman at Duke (Professor Price's neurosurgeon), I also recommended that she read "A Whole New Life."

Ellis F. Muther, MD 1315 S. Glenburnie Road New Bern, NC 28562



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Prepare papers according to the "Uniform Requirements for Manuscripts Submitted to Biomedical Journals" (N Engl J Med 1991;324:424-8) with the following exceptions: 1) no abstract is needed; 2) no running title is needed; and 3) report measurements in metric units; use of the International System of Units (SI) is optional.

Submit a cover letter and either a 3 1/2-inch hard disk or 5 1/4-inch floppy computer disk that contains the text written in MS DOS- or Macintosh-compatible format (WordPerfect, Microsoft Word, Displaywrite, or ASCII), and at least one hard copy of the text. (No disks are necessary for Letters to the Editor unless particularly lengthy.) Double space text, with one-inch margins, and type on one side of each sheet of paper. Title page should include addresses, and telephone and facsimile numbers of the corresponding author.

Submit illustrations, in duplicate, in the form of highquality color 35mm slides or 5-by-7-inch or 8-by-10-inch glossy photographs, or as black-and-white glossy prints (5by-7-inch or 8-by-10-inch). Label all illustrations with author's name, number them sequentially according to their position in the text, and indicate the orientation of the images, if necessary. Do not write directly on the backs of prints. This can damage them. If figures require printing in four-color process, the author may be asked to pay printing fees or a portion thereof.

Type figure legends, double-spaced, on a separate sheet of paper. Tables should be typed, double-spaced, one to a single sheet of paper. All tables must have titles and consecutive Arabic numbers. Include tables, graphs, or charts on disk, if possible.

Keep references to a minimum (no more than 15, preferably 10 or fewer), retaining those that document important points. The "Uniform Requirements" cited above contain the format for references. Authors are responsible for the accuracy and pertinence of all citations.

Avoid abbreviations entirely if possible; keep them to a minimum if not. When used, completely define abbreviations at the first point of usage in the text.

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Health Watch

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Alzheimer's Disease

Fred H. Allen Jr, MD Linda G. Ingle, RN Mary Burke

There is good news for Alzheimer's patients and their families as they face the years ahead: Alzheimer's disease is rapidly becoming manageable. The approach now is away from tranquilizing treatment to that of a positive management program with family awareness. This means adjusting our approach to the Alzheimer's patient, never insisting that those suffering from dementia try to "do as we do."

Through clinical research, we have entered a new era of alternative care approaches to Alzheimer's disease. This article addresses addresses new treatment techniques so patients, family members and physicians can work together to manage this disease.

As we review dementias and treatments in this article, please keep in mind that family awareness of positive treatments will include a skillful approach to the patient, the use

A neurologist, Dr. Fred H. Allen, Jr, is a Clinical Professor of Medicine at the University of North Carolina, a Consulting Associate in Neurology at Duke University Medical Center, and Attending in the Division of Neurology at Carolina's Medical Center, Charlotte, and the Director of the Metrolina Memory Center, Charlotte. He is also on the Board of Directors of the Alzheimer's Association, Southern Piedmont Chapter.

of memory drugs, and early diagnosis of the disease. First, let us consider dementias in some detail.

Memory and Forgetfulness

Memory involves paying attention, learning, and retrieving information. Amnesia is only the loss or impairment of memory with a normal immediate recall. Forgetfulness is not usually memory loss nor a learning problem but rather an impairment in recalling information, usually remembered later or in a structured response.

Dementia is a loss of intellectual function such as remembering and reasoning, that interferes with a person's daily functioning. Progressive problems such as Huntington's Disease and Parkinsonism result in a loss of intellectual efficiency. Such dementias appear largely as problems with processing and retrieval, and difficulty in learning. Therefore, there is a loss of immediate recall.

What is Alzheimer's Disease?

Alzheimer's Disease is the most common of these dementing disorders and affects as many as four million Americans. It is a progressive degenerative disease of the brain cells concerned with thinking and remembering. This results in impaired memory and leads to disturbed behavioral patterns.

Alzheimer's is more prevalent with age. It is seen in 10% of those over 65 years of age, and in 47% of those over 85. Symptoms include a gradual memory loss, a decline in the ability to perform routine tasks, disorientation in time and space, impairment of judgment, personality change, difficulty in learning, and loss of language and communication skills.

Alzheimer's affects the higher brain cells, initially leaving immediate repetition and recall intact. With disease advancement the transfer from immediate recall to long-term memory becomes progressively impaired. This leads to deterioration of memory and orientation, parts of speech and language, visual and spatial skills, and social interaction. Other impaired tools of intellect, called cognition, are the ability to calculate, to recognize similarities, and make abstract comparisons and and judgements.

There are several tests the physician uses to aid in diagnosis.

Memory Testing

The Mini Mental State Examination (MMSE) gives an indication of a patient's orientation, registration, attention, recall and use of language. The normal score is generally recalling 27 or more out of a possible 30 memory items. This separates normal from abnormal fairly accurately. It is less helpful in determining where the patient is in the progression of Alzheimer's — early, middle or late stage. It is important to remember that the MMSE may be relatively normal in early Alzheimer's and in the subcortical dementias which also include Progressive Supranuclear Palsy, and Wilson's Disease.

In Alzheimer's there are no expected physical findings, so the history is most important. Early language use may be normal with clear speech. Language loss or the inability to use words develops as in word finding, substitution, and understanding. Mental function is impaired in that both learning and retrieval are progressively diminished. The Alzheimer patient may lose attention and become disoriented, forgetting how to do routine tasks. When a physician makes a diagnosis, it is important to consider whether it is possible or even probable that the patient's condition is Alzheimer's.

Symptoms

Here are two case histories:

Case #1: An Alzheimer homemaker may forget how to cook her favorite meal, or forget how to use her car keys, or balance her check book. Motor activity is normal in nimbleness, but pacing and wandering often develop later.

Case #2: An artist's pictures revealed decreasing artistic skill. They became simpler and disorganized. The neurologist examining the artist found losses in memory and organization of thought in his life. Also in the exam there were visual-motor skill deficits exceeding those of normal aging.

Simultaneously, he had lost artistic and composing abilities and displayed a decline in almost all spheres of function.

An alert, over-40 patient with a year-long progressive memory and cognition loss and nothing else to account for it could be diagnosed as "probable Alzheimer's." Further confirmation would be made by medical and psychological testing. This would include a CT scan to check for other causes of a progressive course.

Helpful findings include progressive cognitive deficits in language (aphasia), motor skills (apraxia), and perception (agnosia). Also there will generally be impaired activities of daily living and behavior present. Family history and other testing, which would include serial CT scanning, would be consistent with a progression course. Probable Alzheimer's is at times associated with emotional, hallucinatory, and other catastrophic symptoms.

Possible Alzheimer's Disease is also a dementia of unclear cause. It has a variable onset, and presents a clinical course with a second potential but unlikely cause.

Definite Alzheimer's Disease requires a biopsy or autopsy.

Factors that point to other types of dementia would include sudden onset, clearly focal findings, and early seizure gait disturbances.

The classification of Alzheimer's Disease for research purposes also uses other features that may differentiate some types of the disorder such as familial occurrence, onset younger than age 65, Down's Syndrome and co-existent relevant conditions.

Importance of Early Diagnosis

There are many new therapies available now and as in most diseases, the sooner treatment is begun, the greater the expected therapeutic impact. So the early detection and accurate diagnosis of dementia is important.

We are living longer in the nineties, and as our population ages we find that the proper management of dementia may prevent problems and crises, give a better quality of life, and postpone care and nursing home needs. It follows that if we do not diagnose early and intervene with the help available, the cost factor will become increasingly significant. The concept of clinical investigation, research, and discovery offers continued promise and further opportunities for cost effective management.

By making the diagnosis early we can better support memory and functional life activities of the patient. We can utilize new communication interventions and understandings of appropriate skillful Alzheimer management techniques to enhance quality of life. The caregiver should seek services in the community thereby creating indirect pressure upward on the health care system for support. Families may use the Alzheimer's Association and other such resources for information, support groups, and skilled training.

The first memory drug is on the market, and in the context of an holistic approach, Cognex and future drugs have a new place.

One of the most important studies in the country is being made here in North Carolina. This is the APOE genetic research of Dr. Allen Roses. It seems that the susceptibility to develop Alzheimer's can be detected, and possible treatment for postponing the onset of the disease provides a new avenue for drug research. The E4 gene may be the strongest indicator of which patients that show memory loss will go on to develop Alzheimer's. The presence of the gene itself does not cause the disease but shows the absence of other APOE genes. This seems to allow the Alzheimer's process to develop.

Other North Carolina research includes Dr. Albert Haymen at Duke University who leads an effort to standardize the diagnosis for research purposes. He also is urging an increase in the participation of minorities in clinical studies. Lisa Gwyther, MSW, heads a strong Duke Family Support Group with statewide interest. She is an investigator for a program studying enhancement of services to minority and rural areas.

Getting ready for the future involves many of these programs and the anticipated ability to predict outcome genetically and clinically. Public awareness and better diagnoses may enhance patient availability for such drug, genetic, and population studies. Advancing research developments in Alzheimer's calls for management of memory and function in the patient. This is achieved through individual, business, and the community to stimulate legislative interest and create upward pressure for third party support of Alzheimer's patients.

Management Principles for the Nineties

The most important management scheme for Alzheimer's Disease is to avoid crisis and approach the problem directly. Situations complicating management are age, diseases and drugs of the elderly and other social problems.

Understanding the symptoms of Alzheimer's is aided by the brochure on the Ten Warning Signs. Briefly these are: Recent memory loss that affects job skills.

Difficulty in performing familiar tasks

Problems with language.

Disorientation of time and place.

Poor or decreased judgement.

Problems with abstract thinking.

Misplacing things.

Changes in mood or behavior.

Changes in personality.

Loss of initiative.

SYMPTOMANIC MANAGEMENT for the patient includes an environment created to reduce the stress of recent memory loss. Reminiscence of past activitiy helps keep a single familiar focus. The patient can no longer change or switch attention rapidly. Patients may be successful with the "one at a time" approach in which a single photograph is studied, not a full album.

Better communication skills means that instead of arguing with the patient about driving the car, take the key and grind it down. Then without saying anything about the car, change the subject. This nonconfrontational approach will make life easier for all. To prevent falls and vision problems, safety factors must be taken into consideration. Wandering about is a normal part of the disease and must be understood. In BEHAVIORAL MANAGEMENT the inability to switch attention may be the earliest cognitive deficit. But agitation, hallucination, personality and mood changes with loss of interest and iniative will need skillful management. In the past the use of drug control with behavioral problems decreased memory functions. Try nonpharmicological approaches first.

Awareness of caregiver "stress prevention" is a major concern of the Alzheimer's Association. There are local information and instructive courses available. To avoid "caregiver" burnout, the family, community, and physicians need to work together. This team management approach provides the Alzheimer's patient and family with activities, research, education, support and legislative pressure. This is backbone of management.

Physician support in diagnosis and referral is important. So be clear in calling for help by requesting information on new drugs, cost factors, and in continuing education. The hope of the future depends upon early detection and management.

Social work and geriatric support are available in many community hospitals and home health care agencies. Also, the Alzheimer's Association sponsors awareness and management education for local police, clergy, and businesses.

The tough side of Alzheimer's is that it is a progressive disorder. Planning, replanning, re-assessing, reconsidering,



rechanneling, redirecting, and reassurance are continually required. Outside assistance in the form of home health care, day care, respite, and finally institutional nursing home care become progressively needed.

Place stamp here

Metrolina Memory Center ATTN: Linda Ingle, RN, Clinical Nurse Coordinator Carolina Neurological Clinic, PA Medical Center Plaza 1001 Blythe Boulevard, Suite 601 Charlotte, NC 28203

Treatment

Unmanageable behavior is often treated by checking health factors, by removing medications, and by a calm, reassuring approach and preventative action. However, depression, dangerous or severely recurrent agitation and sometimes hallucinations may require drug therapy occasionally, but rarely on a prolonged basis. Advanced and persistent psychotic or "out of touch" behavior in late Alzheimer's may require drug treatment, but remember, nonpharmacological approaches

should always be tried first. And sleep inducement by alcohol or drugs is rarely successful.

The first-of-a-kind drug, Cognex, may stabilize or improve memory function in up to one-half of patients. It was studied in mild to moderate dementia.

We continue to see improvements in treatment and diagnosis. When family members get involved in addressing this disease, we are, indeed, finding new hope for Alzheimer's patients in the 90s.

Caregiver Tips

Additional suggestions for family members as caregivers include:

- Memory aids such as notes posted in a central place.
- Keeping to single topic in conversations and instructions and eliminate distractions during that time.
- Avoid triggers to behavioral problems such as arguments, forcing a certain action, or ignoring the patient.
- Study their language use, for wishing "to go home" may refer to going to the bathroom, or it
 may indicate progressive memory loss and forgetting the current home while remembering
 a previous home.
- Increase fun and initiative, use older items, reminiscences, and recall former interests

The Alzheimer's Association Southern Piedmont Chapter

- Offers a Free Caregiver Course
- Information on Local Services and Support Groups
- Educational Programs and Newsletters

For Information Call: (800) 888-6671 In Charlotte Area: 532-7390

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Alzheimer's Disease: The Ten Warning Signs

An Overview of Alzheimer's Disease

The Alzheimer's Association Chapters that serve North Carolina

Contact with nearby Family Support Groups

Information on the only marketed Memory Drug (Cognex)

Information on Alzheimers Disease Drug Research

Please forward my name to the Alzhemer's Association for further contact. (Caregiver information, services, training, memorial gifts.)

For more information contact your local chapter of the

Alzheimer's Association or the National Headquarters Office at 919 North Michigan Avenue Chicago, IL 60611-1676 Telephone: (312) 335-8700

The Healing Hand

by Andrew N. Wilner, MD, FACP

Four months ago, while visiting the island of Borneo, I slipped and fell. It was horribly anticlimactic. I had already survived a week of nonstop scuba diving on the tiny sea mount of Sipadan, defying sinister sharks, decompression sickness, and battalions of barracuda. On a visit to the Sepilok Orangutan Rehabilitation Center, I had photographed convalescing arboreal apes, quivered at the cold stare of a venomous viper, and reveled in the novelty of a hickey from a lascivious leech.

With only two days left before returning home, I decided to go sailing. In my enthusiasm to get to a sailboat I failed to notice the fine coat of algae growing on the pier. My bare feet flew from under me and I spilled to the ground. My right palm struck the wharf, the little finger bending backward in a distinctly unanatomical position. A well-meaning dockhand, believing it dislocated, grabbed the obtuse digit and pulled.

I found a tender spot on the back of my hand, just under the knuckle. My first thought was to put ice on it, but in the 95° Malaysian heat, ice was in short supply. I decided to ignore the accident, deny that it ever happened, and continue my vacation. I boarded my newly rented boat and set out into the South China Sea. The sun warmed my back and the ocean sparkled splendidly as the gentle breeze carried me over the nearly transparent blue water. Life was grand, except that I could not grasp the mainsheet or firmly grip the tiller. My hand began to swell. After an hour or so on the water I decided to return to my hotel.

Armed with a makeshift ice pack, two aspirins, a cup of tea (Borneo is an old British haunt), and a copy of the local newspaper, I hoped to soothe my hapless hand. Despite my efforts, it swelled substantially. I thought perhaps it was sprained and went to bed, optimistically elevating the errant extremity on a few pillows to ease the swelling.

The next morning I arose early, eager to see how much my hand had improved. It was a rude awakening. The previously nice, even flesh tones of my hand had metamorphosed into brilliant black and blue. Between the swelling and the pain, I could do nothing with the hand. Attempting to shave with my left hand, I risked decapitation. I began to worry, but I would not forego my planned last day of sightseeing.

A bus transported my tour group up a long road winding into the mountains. The luscious terrain and a breathtaking view of Mount Kinabalu diverted me. We alighted at a hot spring and climbed a steep path into the jungle. High up the hill, we discovered a wondrous feat of island engineering. Suspended in the jungle canopy hung a narrow footbridge of wood, steel, and rope. Its narrow plank floor was about 50 yards long. Our guide cheerfully told us that it was checked every day for safety. A walk on the bridge was literally a walk among the treetops with a bird's eye view of the scenic valley in the distance and the rocky ground 200 feet below.

My turn came. I cautiously stepped onto the flimsy wooden floor. My natural trepidation quickly evolved into unmitigated fear. The bridge moved! It swayed left to right; up and down! The wire railing that came up only to my waist was clearly designed for Asians, not vacationing North Carolinians. Unable to grip with my dominant hand, my confidence evaporated. Could I complete this simple crossing? My left hand alone would never support my weight. If I lost my balance, I would topple over the edge, scream, and die.

I proceeded feebly. My companions snickered at the pale green color my skin took on, but I was oblivious to their torments. I focused on each shaky step, fearing it my last. A thousand heartbeats later I arrived on the other side. During the agonizing transit across the "sightseeing bridge," I saw no scenery. Instead I prayed with reverent intensity and bartered away my soul.

That night, my hand was still swollen and quite colorful. Movement of the pinky provided excruciating pain. I contemplated a trip to the local hospital. I had seen it—one of the biggest buildings in town—and it was nearby. Did I have insurance for this? Yes. But what would they tell me? If I was lucky enough to find a doctor who spoke English, he or she would tell me that my hand was broken. By now I, a mere neurologist, had figured that out. An x-ray could pinpoint the location of the fracture, but would I permit corrective surgery? Not here. Would I allow a cast? No. I had ahead of me a 48-hour trip in a series of airplanes. What if the cast became too tight or painful? I decided to pass on the hospital.

By coincidence, an old acquaintance, who just happened to be an emergency room physician, checked into my hotel. We exchanged surprised greetings in the lobby, and I displayed my hand. He, more experienced than I in such matters, agreed with my self-diagnosis. Pronouncing the hand broken, he magically produced a finger splint from his suitcase. He

Dr. Wilner is a physician at Carolina Neurological Clinic, PA, 1001 Blythe Blvd., Suite 601, Charlotte 28203.

carefully bound my fourth and fifth fingers together with adhesive tape and strapped on the sponge-covered aluminum splint for the long journey home. I could not write, hold a toothbrush, or carry my bags, but luckily I had enough coins in my pocket to tip every bellboy and porter from Kota Kinabalu to Los Angeles.

Misery Loves Company

Two days later my first stop off the plane was at the orthopedic clinic next to my office. The hand was summarily x-rayed, pronounced (again) broken, and placed in a cast. For four weeks I wore a fiberglass cast up to my elbow, a remarkably inconvenient appliance. Knowledgeable friends asked about the juicy details of my accident, recognizing the classic "boxer's fracture" cast design. Alas, the story was disappointing, but a playful dinosaur design on the cast attracted approving comments from children and adults wherever I went. I had never worn such a successful fashion accessory.

Paradoxically, my usually abominable handwriting improved because I now printed slowly in block letters. I worked as best I could, taking no time off. I could do everything a neurologist ought to do but swing a reflex hammer. I was slow and dropped things, but otherwise managed reasonably well. My patients sympathized.

On the day set to remove the cast I was ecstatic. Finally, I would be back to normal. A technician at the clinic cut the cast with an ear-splitting saw. Despite his assurances, I was convinced that the blade would gouge chunks of flesh from my arm, propelling me to yet another specialist to repair the damage. Of course, those fears were unfounded.

But no one told me my hand would not be normal! The cast off, I could not extend my wrist. The skin on my right hand still held the tan of five weeks previous. Reptilian scales covered the back of my hand. Where there were no scales, the skin sagged limply. The slightest movement of my wrist or fingers sent waves of nausea rushing through me. I had to lie down in the doctor's office to keep from passing out, adding embarrassment to disappointment.

"This is not my hand," I thought. "My hand is strong and dexterous. It writes, types, and plays the piano. It can hold a razor and toothbrush." I logically concluded this hand was not mine. An imposter! But whose hand was it? I began to panic. I had treated patients with reflex sympathetic dystrophy, that mysterious affliction in which an injured part, typically a hand or arm, fails to recover after a trivial injury. Instead it becomes painful, stiff, and useless. This hand obeyed no commands. The slightest gesture hurt. My hand had divorced me.

My next stop was the physical therapy division of the hand clinic. I was prescribed exercises by a cheerful therapist who gave me a "buddy strap," a Velcro device that held my fingers together and out of harm's way. In awe I scanned the room, filled with impaired hands in various stages of recovery. At least I was not alone.

Attempts at "Channeling"

I figured that my hand might be difficult to exercise, but at least I could keep the rest of my body in shape. At the health club, a new acquaintance reached to shake my hand. I offered my left hand and a brief explanation. Immediately, she took an interest. She was, she said, a "certified natural healer" who could "channel energies that would heal my tissues at a cellular level." She knew nothing of my medical background or my notorious contempt for unproven medical therapies. Curious and a little desperate, I decided to play along.

Soon, I was sitting cross-legged on the floor, holding my hand in the air. As the "healer" passed her hand over my forearm, she remarked on a "significant loss of energy" up to my elbow. Was it only a remarkable coincidence that she described exactly the limits of the now abandoned cast? She positioned my hand between both of hers and "channeled healing energies" into it.

I felt silly, especially when a respected medical colleague entered the room and raised his eyebrows. I smiled foolishly. Two other people walked by and saw what we were doing. Eager to help and expressing obvious familiarity with this technique, they placed their hands around the woman's. My hand became the focus of three healers and six hands.

"Is it tingling?" the woman wanted to know.

Yes it did tingle. I could not explain it. Perhaps in the excitement I was hyperventilating.

"Does it feel better?" she asked.

"No," I thought, "it still hurts." But I felt better!

An Enlightening Experience

Now the buddy straps are off. I can write as illegibly as ever with only a slight ache in my hand. The fourth and fifth fingers close into a fist like they're supposed to instead of lagging hopelessly behind. An almost imperceptible bump belies the fracture site where callus has formed. My doctor has discharged me and I have only a few mystifying bills to sort out. I am almost as good as new.

But I am not the same. I am vulnerable now. Of course, I always was, but now I feel it. There's less distance now between me and my patients. Before, I had supposed myself a physician, not a patient, but this incident blurred the lines. It changed the way I practice. I think perhaps I'm more sensitive and empathic now because an injury set me onto the roller coaster of emotions we humans experience with even the slightest illness. Some of the feelings were appropriate, others irrational and exaggerated. But all were real. They were strong enough to drive even a skeptic to a shaman. The experience of illness is educational for a physician, but it's not cheap. Take it from me, next time you're in Borneo, watch your step.

The Numbers Are Important

Taking Care of My Diabetes

by Margareta Claesson, PhD

Some people worry about the stock market, others about baseball scores. Lots of people look at the numbers on the bathroom scale and worry about their weight. I also worry about numbers because, whether I like it or not, they are vitally important to me. Sometimes they make me extremely frustrated, but they do help me maintain better control of my diabetes. Learning how to understand and use numbers has kept me out of the emergency room and the diabetes ward for the past 25 years. Not bad!

The numbers come from measurements of my blood sugar levels. These numbers help me decide how much insulin I need to inject. Other numbers concern the amount of food I eat and how much exercise I get. All of these numbers I record every day in a large notebook. If I didn't keep a record of the numbers, I would soon forget them. Without these records my doctor and I would have little information for deciding how to change my daily management routine.

I keep records because they are indispensable to living a healthy life. The Diabetes Control and Complication Study, published in 1993, showed that people with diabetes who keep their blood sugar as near as possible to normal have up to 60% fewer complications. When the self-monitoring test for blood sugar levels became available about 12 years ago, I started keeping better track of my blood sugar. Not only has it helped me avert the dreaded diabetic complications, but I also feel better and accomplish more than I would otherwise. At long last, people with diabetes have some choice about their future.

No Longer a Guessing Game

The only way of knowing my blood sugar level is to measure it. Guessing is no help. Because my blood sugar is as jumpy and unpredictable as the stock market, I measure it frequently. Even though I have had diabetes for nearly 40 years, I often cannot sense whether my blood sugar level is normal or too high or too low. With time, my nervous system has become affected by the diabetes—I know this because I do not detect the usual symptoms of low blood sugar as quickly as I used to.

So when I have any inkling of an abnormal blood sugar, I get out my test strips. Other people may take a break from work to stretch or get something to drink, but I prick my finger, press out a drop of blood, and get a blood sugar reading.

Night and Day

Testing my blood is not difficult but it is a never-ending task. All day long, sometimes as often as every hour, I test. When I wake up at 6 a.m., the first thing I do is to test my blood. Then I test again about every two hours, before lunch at noon, a couple of times in the afternoon, before dinner, again before going to bed and often several times during the night. Why do I test this often? Because my blood sugar is very unstable, and when it isn't close to the normal levels, I don't function well. I aim for a normal blood sugar (between 80 and 120 mg/dL) although my blood sugar varies a great deal more. When my blood sugar gets too high, I feel groggy and nauseous. If it goes above 200 I feel really sick and my mental abilities leave much to be desired.

Keeping Control

Like all people with Type I diabetes, my body produces no insulin and so I need to inject it every day. I have found that my blood sugar is better controlled when I take five insulin injections a day. The blood sugar tests help me decide how much insulin to inject. For example, some mornings when I wake up the blood sugar is too high, suggesting that I need more insulin before bed. If I decide to increase my insulin dose, I set the alarm to wake me at 1 a.m. and again at 3 a.m. to check my blood sugar. It is miserable to get up at night, especially when it is cold and I would rather stay in bed, sleeping. But by testing I can better figure out what I need to do the next evening. The numbers tell me whether I injected the right amount of insulin at bed time, and there is a much better chance that I will feel good the next day.

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Precious Time

I depend on yet more numbers. I must know how much exercise I get, not only in terms of duration but also intensity. I test my blood before I start my workout and afterward, too. If I go for more than 30 minutes I test again because during exercise I find it much more difficult to sense a reaction.

Some years back I bought an exercise bike, a sturdy one that sets up a breeze from the front wheel. The biking makes me sweat and the cooling air stream from the wheel feels good. I have a reading stand on the bike that has let me read a great many books, many more than I would have managed otherwise. One of my imaginative friends gave me a small bouquet of silk flowers to fasten to the reading stand to cheer me up. Some days I listen to the radio. I know lots of people who "bicycle" in front of the TV to help make the exercise less boring. Even so, attending regularly to all these chores and remembering to record the numbers take a lot of time, and time is becoming increasingly precious.

Decisions

Back to numbers. Let's look at a recent week. On Monday, I exercised for 20 minutes on my bike, on Tuesday, 25 minutes, and Wednesday, 30 min-

utes. The next day, I didn't have energy to last more than 15 minutes because when I woke up my blood sugar was 240 and I felt queasy and sick to my stomach. It was a struggle to get even the 15 minutes done. I should have waited half an hour before I started biking because I have found that exercising when my blood sugar is above 200 makes it rise further. But if I had waited, I would have been late for a meeting at 9 a.m.

In spite of the high blood sugar and feeling groggy, I had the wits about me to pack the right amount of crackers and cottage cheese for my 10 a.m. snack: three crackers (15 grams of carbohydrate) and 30 grams of low fat cottage cheese (for the protein I need). I put the crackers (in a Ziplock plastic bag) and the cottage cheese (in a small plastic container) in my shoulder bag. It looks like a piece of carry-on luggage and weighs in at about six pounds. I have the usual pocketbook items there—comb and tissues, keys and money, checkbook and pens, notebook, and pocketknife—but also, my food, my blood testing stuff, and a supply of glucose tablets and minipackets of raisins for a possible low blood sugar. If I plan to eat out for lunch, I also pack my insulin and syringe and, to be on the safe side, provisions for an afternoon snack.

During that day, I had an early morning meeting and, at noon, a board meeting. The chairperson couldn't be there, and I was the only one who could substitute. I knew it would be difficult to handle my lunch-time blood sugar test, the insulin injections and eating while chairing the meeting. Luckily my

blood sugar was fine at 11:30 a.m., so I took a chance and postponed my usual lunch ritual for the duration of the meeting.

Obviously I had too little insulin in my body to last past noon, for when I tested again at 12:30 p.m., it was too high. The rising blood sugar had made me feel sick and didn't improve my mental abilities, so I forgot an important agenda item.

Margin of Error

Few people know what is involved in keeping someone with diabetes functioning. They look at me and say: "Do you really have diabetes? You look so healthy." The truth is that I am very healthy, but my margin of error is minimal.

If I eat too little at a meal or skip one of my snacks, I am sure to suffer for it. If I eat too much—an extra piece of bread or half a banana, not to mention something with a higher carbohydrate and calorie content—I pay for it. If I inject the wrong amount of insulin, even a measly drop more or less than

what my body requires at that particular time, I pay for it hours afterward. The problem is that I often don't know what my body will require during the next five to six hours. If I exercise longer than I should with-

out checking my blood, I may have an insulin reaction, which wreaks havoc with my body for half a day, maybe more.

Staying Healthy

"I know it pays to do what I am

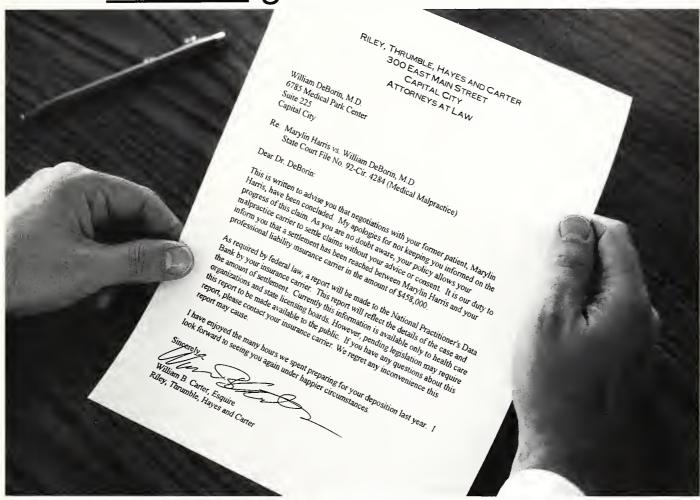
doing, and I know what it feels like

to be out of good control."

When I was a child in the late 1950s I would spend three weeks each semester in the diabetes ward of the children's hospital to have my insulin schedule "adjusted." This was long before home blood glucose tests were available. The hospital was not my favorite place. I think that being able to test my blood sugar whenever I need to and learning to understand and use the numbers generated by the tests are the greatest improvements in diabetes care since insulin was discovered.

Sometimes I get furious with all the work I have to do to stay healthy. Yet, I know I must. If I didn't keep track of my numbers, I would soon deteriorate both physically and emotionally. The grim consequences of not controlling my blood sugar—blindness, kidney failure, heart problems, gangrene—are all possible complications of long-term diabetes. I know it pays to do what I am doing, and I know what it feels like to be out of good control. I also know how tremendously much better I feel today than I used to before I learned to keep closer control of the blood sugar. Two great advances, self-monitoring and the tight glucose control, mean that I am alive and eager to write about it.

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Ocular Hypertension

A Convenience Sample Survey of Blood Pressure and Intraocular Pressure Determinations in Blacks

John C. Merritt, MD, Ronald W. Helms, PhD, Jesse F. Williams, MD, MPH, Deborah Blake, LPN, and Yue-Mei Cheng, PhD

Blacks have a disproportionately high prevalence of both essential hypertension¹ and of primary open angle glaucoma.² Major risk factors for developing primary open angle glaucoma include increased intraocular pressure (IOP), a family history of glaucoma, or an African-American ethnic origin.

The Baltimore Eye Survey found that blacks develop primary open angle glaucoma five times more often than whites² and that they are twice as likely to go blind from the disease.³ This rate of blindness is especially alarming because blacks seek and receive medical treatment as early as their white counterparts.⁴

Methods

We conducted a convenience sample survey of two eastern North Carolina counties to determine blood pressure (BP) and intraocular pressure (IOP) in 450 blacks. Previous treatment for hypertension or glaucoma did not exclude subjects from screening, and 235 subjects (51.5%) had a prior history of arterial hypertension or were taking antihypertensive medications at the time of evaluation.

We used basic ophthalmic screening

procedures (distance visual acuity, applanation tonometry, and blood pressure determinations) to screen this population known to be at high risk for diabetes mellitus, essential hypertension, and primary open angle glaucoma. The subjects were screened at local churches in Sampson County, at one barbershop in Clinton, and at the E. Newton Center operated by the Cumberland County Health Department in Fayetteville.

Visual acuity at 20 feet was determined using self-illuminated optotypes (Good-Lite Co., Forest Park, IL). Optical correction (either eyeglasses or contact lenses) was used where appropriate. Blood pressure was measured with a mercury column sphygmomanometer after the subject had been sitting for at least five minutes before the first reading; a second blood pressure determination was made after a further three to five minutes of quiet sitting. IOP was measured with a Kowa portable applanation tonometer, which provides readings comparable to standard slit-lamp mounted Goldmann tonometers.5 One drop of topical fluorescein-anesthetic combination (Fluress, Barnes-Hind) was applied to each lower cul de sac prior to the first tonometric reading. A second IOP reading was obtained approximately 10 minutes later. One examiner (JCM) made all IOP measurements.

Subjects whose second IOP reading was greater than 22 mmHg underwent direct ophthalmoscopy to evaluate their optic nerves for frank glaucomatous changes. These subjects were advised to obtain a complete ophthalmologic evaluation (including dilated fundus exam, gonioscopy, and perimetric examinations) to rule out the presence of glaucoma.

We used the following clinical definitions:

- Ocular hypertension = IOP ≥23 mm
 HG in at least one eye.
- Systolic hypertension = systolic blood pressure (SBP) >140 mmHg on either reading.
- Diastolic hypertension = diastolic blood pressure (DBP) >90 mmHg on either reading.

Results

We screened 450 blacks during 12 months in Sampson and Cumberland counties. Two hundred ninety (64.4%) were female and 160 (35.6%) were male. One hundred eighty-six eyes (20.4% of the

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total number) in 112 subjects (24.9% of the total) were hypertensive (IOP ≥23 mmHg) at the first determination, and 126 eyes (13.8%) in 78 subjects (17.3%) were hypertensive at both readings. Four eyes (in four subjects) were hypertensive only on the second reading, not the first. Table 1 provides the gender related data for subjects (not eyes).

Figure 1 depicts the correlation of systolic blood pressure, diastolic blood pressure, and intraocular pressure. These data indicate a direct correlation between systolic (but not diastolic) blood pressure and intraocular pressure in blacks. Pearson product-moment correlation between IOP and systolic blood pressure, adjusted for age and gender, is r = 0.30. This is significantly different from zero (p <0.0001).⁶ The corresponding correlation between IOP and DBP is r = 0.23 (p <0.0001).

Discussion

A relationship between systolic hypertension and primary open angle glaucoma has been suggested before. Wilson, using a case-control study in Boston, first suggested that untreated systolic hypertension might increase the risk of developing primary open angle glaucoma in blacks. More recently, a cohort study from the Caribbean island of St. Lucia disclosed an inordinately high prevalence of primary open angle glaucoma (found in 8.8% of subjects 30 years old or older). The authors suggested that systolic hy-

Table 1. Ocular hypertension (intraocular pressure >23 mmHg) in blacks in Sampson and Cumberland countles, NC (n=450)

	Number (%) of ocular hypertensive subject	
	Reading 1	Reading 2
Female	79 (27%)	57 (19%)
Male	33 (20%)	21 (13%)

pertension might be a causal factor.8

Recently, a survey of white men by the Baltimore Longitudinal Study of Aging9 showed a positive association of systolic blood pressure with intraocular pressure. The authors compared data obtained one to two years apart and found that a change in systolic blood pressure was positively correlated with a change in IOP. They said that "subjects with a systolic blood pressure of 160 mmHG had a 2.2 times greater chance of having an [elevated] intraocular pressure." Similarly, the Health and Nutrition Examination Survey (HANES), conducted from 1971 to 1973 in 35 locations across the United States, provided information on the distribution of IOP in an American population unselected for ocular or other medical disorders. Mean intraocular pressure was slightly higher in blacks than in whites. All four race/gender groups showed a consistent association between level of blood pressure and of intraocular pressure.10 Bulfitt found a similar correlation of raised systemic blood pressure with increased intraocular pressure in elderly British subjects.11

In the US the initial treatment for primary open angle glaucoma is usually medical, but in the United Kingdom intraocular surgery (trabeculectomy) is becoming popular. Medical treatments—miotics, beta-adrenergic blocking, or epinephrine-like eyedrops to reduce intraocular pressure—have never been shown to stabilize or improve the visual fields. ¹² Thirty-eight years ago Duke-Elder ¹³ suggested that primary open angle glaucoma be considered "a sick eye in a sick body."

Our study demonstrates the positive (and worrisome) correlation of raised systolic blood pressure and raised intraocular pressure. We believe that treatment should aim at improving overall health status, not simply at decreasing intraocular pressure. Treating essential hypertension, encouraging a physically active lifestyle, eliminating smoking, and improving diet should become the focus of our therapeutic regimes. Aerobic exercise should be encouraged in all glaucoma suspects because the concomitant effects on ocular hypertension may be as beneficial as pharmacologic interventions.14 🔲

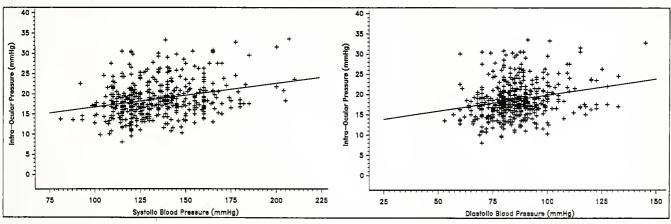


Fig 1: Left—Intraocular pressure (IOP) vs. systolic blood pressure (SBP) from 450 subjects. IOP values averaged over two eyes; IOP and SBP values averaged over two measurements. Solid line is the regression: IOP = 10.8 + 0.0586 x SBP. Right—Intraocular pressure (IOP) vs. diastolic blood pressure (DBP) from 450 subjects. IOP values averaged over two eyes; IOP and DBP values averaged over two measurements. Solid line is the regression: IOP = 11.9 + 0.0796 x DBP.

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Medical Needs of the Homeless

A Profile of Residents at the Chapel Hill Homeless Shelter

Jodi Slotchiver, Sadhana Char, and Philip D. Sloane, MD, MPH

Homelessness in the United States has increased steadily during the past few decades. It is more visible now than at any other time since the Great Depression. In 1984, the Department of Housing and Urban Development estimated that 250,000 to 300,000 homeless persons sought indoor shelter services. If we include the street homeless and those living with family and friends, we can estimate the total number of homeless to be two to three million.

The causes of homelessness are multiple and complex. According to Rosnow, unemployment and conflict with family and friends contribute the most.⁴ Other factors include release of patients from residential treatment facilities (a part of the trend to deinstitutionalize psychiatric patients), loss of welfare benefits, reduced availability of low-rent apartments, and eviction from living quarters due to poor behavior.^{3,4} An increasing proportion of the homeless are women and children, primarily because of economic factors and family violence.⁵ Drug and alcohol abuse also play a large role in homelessness—up to 50% of homeless persons are reported to abuse alcohol.⁶

Homeless persons, who already may have reduced access to health care, also often suffer from poor health. Besides alcoholism, the most common chronic problem is hypertension, which affects 14% to 25% of the homeless, a proportion similar to the US population at large.6 When compared with poor persons who have homes, the homeless are more likely to have dermatological problems, functional impairment, seizures, chronic obstructive pulmonary disease, arthritis, visual problems, foot pain, and poor dental hygiene.7 Peripheral vascular disease and leg ulcers are common and are exacerbated by exposure to dampness and cold, poor nutrition, long periods of standing or sitting, infections, and skin trauma. 3,8,9 The lifestyle of the homeless-being victimized, having poor nutrition, crowded living quarters, and irregular sleep cycles-creates and magnifies health problems.8,10 Of course, many of the homeless are unaware of their medical conditions, so health studies probably underestimate the true occurrence of these conditions.

Most studies of the homeless have collected information on urban populations. ^{1,9,11,12} However, suburban and rural communities have many of the same social problems that foster urban homelessness. The increasing numbers of homeless in suburban and rural areas and the effects of homelessness on health are growing concerns because less-populated areas do not receive the same governmental attention and funding as large cities. In North Carolina, where a large proportion of the population resides in rural areas and small towns, the homeless population may have characteristics that differ from those recorded in major metropolitan areas.

To better describe the health status and needs of North Carolina homeless, we studied the population residing in the Chapel Hill Interfaith Council (IFC) Community Shelter, the major residence for homeless persons in Orange County. We used a cross-sectional design to characterize the demographic characteristics, health status, and health care utilization of adult residents of the IFC Community House. We addressed three main questions during data collection: 1) What are the major health problems of this homeless population? 2) How do the homeless perceive their health status? 3) Does their perception of health status affect their use of health services?

Methods

The Chapel Hill IFC Community House typically accommodates 35 homeless men and 18 women/children from Orange and Durham counties each night. An on-site clinic provides limited health care services. Our study population was gathered by random selection of adult shelter residents chosen from the evening bed sign-in list using a table of random numbers. No children were interviewed.

Inclusion criteria stipulated that subjects sign an informed consent form and have an interpreter present at their interview if they did not speak English. Subjects who were unavailable for interview had their names recorded and were sought out the

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following night. This process was repeated until the interview was completed or the subject declined. Of 73 residents approached, 65 agreed to be interviewed; three men and five women refused. The ratio of men to women interviewed was approximately 2:I, reflecting the gender distribution of residents at the shelter. The interviews were conducted for a period of two weeks during each of the winter, spring, and summer seasons.

The interview instrument consisted of 96 questions concerning demographics, homelessness history, physical and mental health status, patterns of health risk, and utilization of health services. We used open-ended questions to ask about health perceptions and utilization so as not to involuntarily skew the answers. Health status was assessed using two-point (yes/no) self-rating measures based on the RAND Serious Symptom Index and the RAND Minor Symptom Index. Subjects used a two-point Chronic Disease Measure to rate chronic conditions and a four-point (excellent/good/fair/poor) scale for overall health.

Functional limitations were measured using a dichotomized index that assessed whether poor health adversely affected the respondent's ability to: perform vigorous activities or moderate activities; walk several blocks or climb stairs; bend, lift, or stoop; and work or attend school. Subjects were asked open-ended questions about risk factors for illness such as use of cigarettes, illegal drugs, and alcohol. Alcohol use was further assessed using the four CAGE questions. ¹³ Risk of contracting HIV infection was briefly explored.

The data were entered into a data base and the EpiInfo statistical package¹⁴ was used to generate and cross-tabulate frequency tables. Differences between groups were tested for significance using t-tests for differences in means and chisquare tests for differences between frequencies.

Results

Demographics. The demographic characteristics of the 65 persons interviewed (Table 1) reflect the diversity of the homeless. The residents of the shelter were young, with 80% between the ages of 25 and 44 years, and largely black (59%). Nearly three-fourths were high school graduates, and almost half also had had one or more years of college. Whites had significantly more education than non-whites (p< 0.01).

Women represented approximately one-third of the sample (35%) and most (88%) were divorced, separated, or never married. A significant percentage (32%) reported being socially isolated, having no visits with friends or family within the past month. Almost half of the women (45%) had one or more children with them. Fourteen percent of subjects had a wife/girlfriend or husband/boyfriend at the shelter.

Reasons for homelessness. The main reasons given for becoming homeless were unemployment (22%) and domestic disputes with parents, siblings, spouses, and roommates (22%). Given that several subjects cited unemployment as a cause of

homelessness, it is surprising that more than half (60%) were employed in some capacity and 31% were working full-time. Several persons (14%) reported that they had come to Chapel Hill for a "change of scenery" or for a "new beginning," or had left home "out of respect for family." Drugs were cited as a reason for homelessness by 5% of the population but, as will be noted later, a far higher proportion were current alcohol and drug users. In addition, several residents (6%) were in Chapel Hill because of having found jobs but had not had time or money to find a new home. Another 6% had come to Chapel Hill for medical care but had nowhere to stay while receiving treatment. Six residents (9%) had just been discharged from some kind of living facility (including jail, the Army, and short-term psychi-

Table 1. Demographic characteristics
of Chapel Hill homeless

Age 15-24 years 25-34 35-44 45-54 55+	Percent of subjects
Race white non-white	30.8 69.3
Sex male female	64.6 35.4
Education < 9th grade some high school high school graduate ≥ 1 year of college	6.0 20.0 29.2 44.6
Marital status married divorced/separated never married	12.3 47.6 40.0
Social relationships Adults with one or more children living with them in the shelter	n 16.0
Has wife/girlfriend or husband/boyfriend at shelter	13.8
Visits with family/friends in past several times per week one a week or less not at all	month: 29.2 37.0 32.3
Employment Full-time Part-time or casual Unemployed Retired Student	30.8 29.4 29.2 7.7 3.1

atric care). Two (3%) had homes that were uninhabitable because of lack of heating or electricity.

Health status. Table 2 shows that a considerable percentage (42%) of this homeless population reported some kind of functional disability: 34% said vigorous activity was restricted by poor health; 20% had difficulty walking several blocks or climbing stairs; 20% indicated that their health limited their ability to work or go to school. Nearly 28% believed their health had worsened since becoming homeless.

More than half (52%) reported one or more chronic conditions: hypertension (25%), asthma (15%), ulcers (12%), and emphysema (12%). A very large proportion (70%) reported having had one or more acute symptoms within the past month: backache (27%), toothache (26%), and "flu" symptoms (14%). Despite the relatively high prevalence of health problems, a low

Table 2. Selected health status indicators
among Chapel Hill homeless

Reported health status self-reported health:	Percent of subjects	
excellent/good fair/poor trouble walking several blocks/o health limits vigorous activity health limits working health worsened since homeles	33.8 20.0	
Prevalence of selected chron history of a heart attack asthma seizure disorder emphysema peptic ulcer disease hypertension diabetes	4.6 15.4 9.2 12.3 12.3 24.6 1.5	
Prevalence of selected acute symptoms within the past mobackache toothache flu chest pain	onth 26.6 26.2 13.8 9.2	
Risk factors for sexually tran number of sexual partners in pa ≤ four ≥ five Worried about having AIDS vir	ast six years: 54.7 45.3	
Smoking status non-smoker smoker	29.2 70.7	
Use of alcohol and Illegal dru ≥ two positive responses to CA screen daily beer consumption daily liquor consumption current use of illegal drugs (cocaine or marijuana)		

percentage (29%) was taking prescription medicines. Almost one-third were worried about being infected with HIV.

The reported health problems were exacerbated by poor health habits. Of the residents interviewed at the Chapel Hill shelter, only 29% did not smoke; 62% smoked one pack of cigarettes or less per day. Almost one-fourth (23%) admitted to using illegal drugs, usually cocaine or marijuana. Ten persons (15% of the population) used cocaine, one-third of them daily: seven persons (11%) used marijuana but most of them (57%) less than once a month. Almost half of the subjects (46%) admitted to drinking alcohol, usually beer, every week; nearly one-fourth (23%) drank at least every other day. The CAGE questionnaire reflected this degree of alcohol consumption; 40% of subjects gave positive responses to two of the four CAGE questions and could therefore be considered likely alcohol abusers. The homeless men in our sample drank more heavily than the women: only one of the 15 subjects who reported drinking frequently was female (p = 0.01 by Fisher's exact test).

Health care utilization. Health care utilization patterns suggest that at least some of these homeless individuals were

Table 3. Health care utilization

of Chapel Hill homeless	ion
Most recent MD visit within past year 1 - 2 years ago > 2 years ago	Percent of subjects 86.1 3.1 10.8
Most recent dental visit within past year 1 - 2 years ago > 2 years ago	35.4 16.9 47.7
Ever stayed in mental hosp yes no	ital 33.8 66.2
Places where medical assist hospital emergency departments shelter clinic veterans' affairs hospital other	
Most recent pap amear (wo within past year 1 - 2 years ago > 2 years ago	men only) 65.2 26.1 8.6
On prescription medication	29.2
Wanted to see MD recently	but did not 35.4
Most important reason for ratio expensive believe visits will be useless no transportation	not seeing: physician a psychiatrist 55.0 26.1 15.0 17.4 5.0 26.0
other	25.0 21.5

not getting adequate health care. Approximately one-half (49%) believed their health was fair or poor (Table 2), and over one-third (35%) indicated that they had recently wanted to see a physician but did not (Table 3, at left). The most common reasons given for not seeing a physician were: 1) the expense of the visit; 2) the belief that the illness or injury was not severe enough to warrant attention or was untreatable. When health care was sought, residents reported that they used either a hospital clinic (35%) or emergency department (28%); only 8% had a private physician. A small but significant minority were unsure where to turn for medical assistance. Dental care was similarly lacking; 48% had not seen a dentist within two years.

Forty percent of the homeless had consulted a doctor for a mental or emotional problem; women were more likely than men to have had treatment for mental disorders (p = 0.05 by chi square). Shelter residents gave the same reasons for not seeking psychiatric care as they had for medical care.

Improving self-health. When asked what they could do to improve their own health (Table 4), 77% of the homeless responded that changing their health behaviors, particularly in regard to smoking, was most important. This is in direct contrast to the small number (3%) who said they were actively trying to quit smoking. Only 14% ranked use of health care facilities, including visits for a specific health problem, screening, mental health counseling, or dental care as being highly beneficial.

When asked to identify the single thing most important to improving their life, the residents' responses were multifaceted and included physical, mental, spiritual, and social aspects. Primarily, however, these homeless individuals were concerned with basic needs: employment (26%) and social support (23%); only 6% rated health the most important factor necessary for improving their life. Despite a relatively negative perception of their health, the majority of the homeless interviewed (63%) generally felt positive about their lives.

Discussion

Years ago, the word "homeless" evoked an image of impoverished, uneducated, middle-aged or elderly white men who had broken all ties with family and friends, who often were alcoholic, and who lacked the motivation to improve their situation. Today, the homeless cannot be so stereotyped. Compared to previous generations, the present US homeless population is younger, better educated, and has more minorities. ^{15,16} An increasing number of women, children, families, the mentally and physically disabled, impoverished senior citizens, and runaways contribute to the heterogeneity. ¹⁷ Compared to national figures, the shelter residents we studied were younger,

Table 4: Health perceptions of 65 Chapel Hill homeless

Most important thing for an improved life employment	Percent of subjects 26.2
better social support	20.2
(marriage, family reconciliation, friendship)	23.0
find a home or apartment	10.8
financial security	10.7
improve attitude and/or self-knowledge	9.3
return to religion	9.2
improved health	6.2
other	4.6
Most important thing for better health change health behavior	
stop smoking	27.7
better eating habits	15.4
exercise	9.2
decrease stress	6.2
stop drinking	3.1
lose weight	3.1
other	10.8
see doctor, dentist, or mental health provider	13.8
don't know	9.2

more commonly black, and better educated, but the fraction of homeless women was consistent with national figures that show that women comprise 25%-33% of the homeless population.^{12,16,18}

Our study supports published reports that a wide range of factors leads to homelessness. However, some factors we noted, such as the need to be close to a major medical center, were unusual. Furthermore, we found that the unemployment rate of 40%, although significant, was not the overwhelming factor noted in other studies (in Los Angeles and Kansas unemployment rates among the homeless were found to be about 80%^{1,10}).

Considering their relative youth, a surprisingly large percentage of our subjects (49%) perceived their health as fair or poor. This is a larger proportion than reported for other populations, such as Los Angeles (23%).10 The high prevalence of self-reported acute and chronic conditions seems to validate this judgment. Our study population had substantial health risks including social disaffiliation, substance abuse, poor nutrition, unsafe sexual practices, and lack of medical care and screening. Lack of social support is linked to poor health, because social support buffers the effects of psychological stressors. 19 Alcohol abuse rates were quite high in our study although lower than some others report. 9,12,20 We caution that, although it is possible that the rates we found are truly representative of the Chapel Hill population, it is equally possible that our respondents were not candid for fear of punishment or embarrassment. We conducted no tests, such as liver enzyme levels, to confirm alcohol abuse, but there were two occasions in which subjects smelled of alcohol but denied alcohol use and were so recorded.

Compounding the health risks is underutilization of medical care facilities. Homeless persons fear being turned away from such facilities because they have no money or insurance. Medicaid or other forms of public assistance are difficult to obtain without a permanent address. Oftentimes the homeless are unaware of their rights as veterans, or do not have access to health facilities. ¹⁰ Furthermore, even when health care is accessible, their transient and unstable living conditions result in fragmentation of health care. Follow-up care is rare, and noncompliance with medications common.

Some health issues were not studied as intensively as we would have liked. HIV risk was inadequately explored, and the percentage of those who were worried about having AIDS may not be an accurate reflection of the risks. Many residents stated that were not concerned about having AIDS but also reported that they did not use condoms because they "trusted" their partner. Likewise, the psychological status and specific stressors of the homeless were inadequately examined. Finally, screening for infectious diseases such as tuberculosis and HIV disease was not possible with study resources.

Our study was also limited by the small size of the population interviewed. Generally, we found no differences between ethnic or gender groups, but this is not consistent with the literature. Ritchey reported that homeless women and men not only have different health risks, but that women are more likely to report mild symptoms than men.¹⁹ Furthermore, Gelberg reported that homeless men are more likely to die than women because of greater substance abuse, hypertension, and cigarette smoking. Gelberg did note, however, that the physical health of the different ethnic groups was generally similar.¹² Furthermore, the fact that we studied only shelter residents decreases

the generalizability of our findings. Both Gelberg and Linn²¹ and Breakey et al¹⁰ found marked differences between homeless who lived in shelters and those who lived outdoors. Our study may not be applicable to the homeless who live in deserted buildings, parks, cheap hotels, jails, or with friends.

Nevertheless, it is evident that the Chapel Hill homeless population is susceptible to chronic conditions and acute symptoms, as is the US homeless population in general. It is also clear that health status of and health care utilization by Chapel Hill homeless is poor, but obviously not a personal priority for them. In many cases, the homeless understand that health habits are a problem but they are not motivated to change because they are more concerned about basic needs such as permanent shelter, employment, and social affiliations. Since the homeless do not assign high priority to health issues, their health care could be improved by bringing resources directly to them and facilitating their entry into the health care system. Furthermore, public health and health education measures such as substance abuse programs, the provision of clean and safe living conditions, adequate nutrition, and encouraging health-promoting habits could help this needy but underserved group. \square

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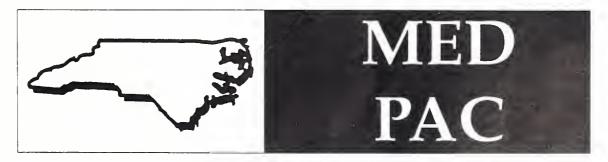
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Ageism Distorts How Medical Students (and Doctors?) See and Assess Patients

Carolyn Rashti, MS

A number of medical schools have developed teaching programs that use actors to portray the role of patients. These programs give student doctors the opportunity to rehearse, in the safe environment of the "hospital classroom," the difficult skills of interviewing, clinical reasoning, problem-solving, diagnosing, and perhaps most important of all, mastering appropriate interpersonal skills. The students are aware that the "patients" are professional actors but, very quickly a real patient-doctor relationship develops—with all its attending academic, intellectual, and emotional content.

In the program developed at Duke University, actors are technically and artistically trained by Joan Tetel-Hanks to improvise from a detailed scenario (not a script) comprised of specific symptoms, and personal, social, and family medical history. Drawing on their own intelligence, sensitivity, creativity, and life experience, the actors become fully dimensional and credible "standardized patients."

These programs offer an effective bridge between textbook learning and the reality of complex interactions that occur with an actual patient. The availability of such programs led the four North Carolina medical schools to devise a test of medical students' clinical skills by having students examine a panel of such "standardized patients." The students' performances were judged by their ability to answer medical questions about the "patients" they examined and by rankings of the students' "doctoring skills" by the patients.

During the summer of 1993, I participated with at least 30 other actors of all sizes, ages, and colors in the first such examination of students from the medical schools at Duke and UNC-Chapel Hill. The testing took place in hospital examining

rooms. I had grown to respect and admire these exceptionally intelligent students during several years of working with them in the classroom program. But, during the exam, I gradually became aware of a rather surreptitious but significant problem shared by a large number of students. They themselves were not, I believe, aware of it. Then, I became concerned. Let me set the stage:

The standardized patient waits in a hospital examining room. Before entering, the student doctor reads the "patient's" chart on the door. It states that "Catherine Allen" (whom I play) is a 70-year-old woman worried about having lost 15 pounds over a six-month span. This is all the information about the patient that is given to the student doctor. The student is to "take an appropriate history from the patient, assess the presenting problem, and depending on the initial diagnosis, make recommendations for additional examinations and specific tests."

Catherine Allen is well-educated, dignified, and anxious. She has been healthy all her life and has had no significant changes in her lifestyle or diet in many years. The only time she was in a hospital was 35 years ago when her daughter was born. She is overwhelmed by the enormous growth and technological advances of the medical center. She is also aware of the American Cancer Society's admonition about "unexplained weight loss" as a sign of cancer. She remembers that her father lost more than 100 pounds as he lay dying from colon cancer. Her brother died from prostate cancer. She has been constipated for weeks and is terrified that she may have cancer due to a susceptibility inherited from her father. The Cancer Society's promise that "early detection saves lives" is the only reason she is here. She wants her colon tested "immediately." She has no intention of undergoing the horrendous dying process her father endured.

Ms. Rashti is a counselor in private practice. Her address is 13B Poplar St., Chapel Hill 27516.

Three Scenes

The time: late morning. The place: the examination room.

Scene One: Ms. Allen is seated in a chair, her legs tightly crossed, arms close to her chest, her right hand pressed at her lips. Her eyes suddenly open wide as the student doctor knocks on the door and enters. He remains standing to introduce himself and confirms her name.

"I understand you're worried about weight loss?"

"That's right."

"When did you start losing this weight?"

"About six months ago."

"How much did you weigh then?"

"I don't know. I haven't been on a scale in 35 years."

"If you didn't weigh yourself six months ago, how do you know you've lost 15 pounds?"

With only a moment of thought she replies, "Because my slacks keep sliding down my hips and what used to be around my middle was a whole lot bigger than a 10-pound sack of potatoes."

The student doctor takes out a pad and pen and prepares to take notes.

"Mrs. Allen, can you tell me what today's date is?"
Her forehead wrinkles with surprise, "The 10th or the 11th, I think."

"And what city are we in?"

Ms. Allen feels a new anxiety and replies, "Chapel Hill." Suddenly, she is embarrassed to realize she is in Durham. Her embarrassment turns to anger. "Just a minute. Are you giving me a reality test?"

The student smiles and responds, "Oh, I give all my patients this test."

"Well, you don't give this patient a reality test and if you do, you sure don't get any answers!"

The interview continues on a tenuous basis. Ms. Allen responds only "Yes" or "No" to his questions from this point on. The student doctor concludes the interview in a few minutes prescribing a general examination when an appointment is convenient.

Scene Two: A student doctor knocks on the door. There is no response. He knocks again and still no response. He opens the door, peeks in and queries, "Mrs. Allen?"

There is a mumbled "Yes."

"My name is Evans, Mrs. Allen, Chris Evans." He extends his hand.

The patient looks up at him from her chair. She places her hand in his; his grasp is so weak her hand falls out. She returns to her slumped over position, her breathing is shallow, feet together and well beneath her, hands tightly clasped now on her lap. Her eyes are almost tearful.

"How are you feeling?"

"I'm very worried." She puts a tissue to her nose, blows and looks at him with apprehension.

The student doctor pulls up a stool, rolls toward her, puts his hand on her knee and says with all sincerity, "Tell me what's worrying you."

She is suddenly shocked. Her worry and sadness turn to indignation as she coolly looks at his hand and then directly into his eyes. He removes his hand. She turns away then turns back to face him. "I've been blessed with a lifetime of good health. I've never even broken a bone. But over the years I've lost so many friends. Now I'm getting symptoms. At 70, it's probably my turn."

"Now, now, Mrs. Allen." He pats her knee again. "You really don't look 70 and anyway you're only as old as you think. Now tell me about these symptoms."

Scene Three: The student doctor enters. Ms. Allen is pacing back and forth with long steps.

"Mrs. Allen? I'm Dr. Jones. How ya' doin' today, young lady?"

Ms. Allen spins around, her brow furrowed. She drops her shoulders and exhales a sigh of resignation. Crossing her arms, she faces him directly and says, "I'm in a quandary."

"A quandary?"

"Yes, I don't understand why I keep losing weight even though I haven't changed my diet or any of my activities. I've always been very aware of my caloric intake. For years I've struggled to keep my weight down but now I'm losing weight slowly, surely, and continuously. For the last few weeks, almost as a challenge, I've even been eating ice cream and chocolate desserts that I never would have even looked at and I'm still losing weight."

"Well now," he smiles, "At your age I think you're entitled to a few little vices."

Commentary

These attitudes seem to me to illustrate the essence of discrimination. The student doctors formulated their opinions of Catherine Allen, not based on her individual characteristics but on her membership in a group whose members are presumed to share the same or similar traits. This prejudice is called *ageism*—subtle, extensive, often unrecognized, rarely discussed, and minimally understood. Prejudices are dangerous because they distort thinking. Ageism is no different. And it is growing rapidly along with our increasingly aging population.

The illustrative scenes I presented above demonstrate its existence within an important and talented population—our young student physicians. I worry that the presence of this prejudice in future medical practitioners will obstruct their accurate assessment and diagnosis of patients. And I have given only three abbreviated examples from my experience as a standardized patient. I believe that ageism distorted the thinking of about one-third of the approximately 165 student doctors who interviewed me. One out of three seems to me too great a ratio of these intelligent students to ignore.

In these and other interviews, Catherine Allen's age seemed a dominant and distracting factor in the minds of the students. It determined their impressions, comments, and actions. As a result they neglected important issues and used far less time than the allotted 20 minutes to explore assessment possibilities. They disregarded or dismissed Catherine Allen's anxiety, jumped to conclusions, discounted her complaint of weight loss, offered unwarranted flattery, and patronized her with banal comments that confirmed the ageism of which they were so unaware. Many students failed to investigate a most vital aspect of this patient—her family medical history—which would have guided their assessment and testing.

"The insidious prejudice (of ageism) has degrading and damaging effects."

In portraying Catherine Allen, it was my responsibility to express my feelings only to the extent that they were congruent with my role. I ignored each ageist comment I heard—again and again—until I wondered why I had to ignore them. I felt patronized and degraded by quips like "Young lady," "You're only as old as you think," and "At your age." Such remarks, possibly tolerable in a long-standing and trusting relationship, created a distance between me and the young doctors whom Catherine Allen was meeting for the first time and on whom (she felt) her very life depended. She—I—wanted an ally, a doctor who was "with me" on a realistic human level. I wanted those student doctors to be aware that they, too, might reach the age of 70. I felt the ageism. It hurt and I wanted it to stop.

Through my role as a standardized patient, I feel I have a stake in the education of one of society's most responsible and vital professions. I feel an obligation to share my experiences and observations and bring this issue to the doctors of today, especially those who train the doctors of tomorrow. Ageism permeates our society. It may not seem as dangerous as racism and sexism because the aged are usually thought of as non-threatening, weak, feebleminded, or dependent. But this insidious prejudice has degrading and damaging effects.

Problems Created by Ageism

During one of the interviews, a student doctor questioned me about genito-urinary tract symptoms by asking, "Any problems with your female parts?" I commented on the outdated phrase. He responded, and I quote directly, "Well, back then, things weren't like they are now." I sensed his embarrassment, but was unsure whether he thought that, since I came from "back then," I would not be familiar with today's terminology.

I was also puzzled by another aspect. Sexual activity is a vital health issue yet, in all the interviews, only one student touched on this question. Why? Were they shy about referring to sex, or about sexual activity among the elderly, or ignorant

of the fact that sexual activity among healthy elderly often continues until death? Perhaps sex among the elderly is the last taboo. Perhaps I should not have been surprised since society at large has problems in this area. Who could possibly imagine an old man and an old woman making love? The film, "Cocoon" hints at this possibility and then only because of a miracle. I had hoped, though, that our medical students might have been a little more enlightened.

It will be years, I'm sure, before our youth-oriented society realizes how it has devalued the elderly by perpetuating ageism. Depression is epidemic among the dependent and frail elderly. Gerontologists hypothesize that their rate of suicide is the highest of any age group although it is difficult to be sure because the elderly rarely cry out for help by making unsuccessful suicide attempts or leaving notes. They just do it—sometimes merely by stopping their prescribed medications. Getting old is happening to more and more of us now "unless," as an old man once said to me years ago, "you're lucky."

Old people either ignore, laugh off, or in some other way, deny the hurt of ageist remarks. Ageist comments reinforce negative attitudes, which even the aged themselves often accept. One morning (I admit with shame) Catherine Allen said to one of the students, "I won't be 70 until next month. I'm still 69 and will remain 69 for the next five years." A charming, humorous quip—and a perfect example of ageism. Like all prejudices, it is difficult to cast out. Big business capitalizes on ageism to gather big profits. Hallmark cards: "Congratulations, you have finally become 29—again." Clairol hair coloring: "Get rid of the gray." Napoleon French brandy: "Aging but not growing old." Will we never see a beautiful old woman posing with and enhancing a Cadillac Coupe de Ville?

"Old people either ignore, laugh off, or in some other way, deny the hurt of ageist remarks."

Western culture almost always correlates age with ugliness. The repulsive Halloween mask depicts an old man or woman, toothless, wrinkled, with an extended nose, warts, protruded veins, and long dirty hair. Before we became more aware of racism, similarly degrading masks of blacks were sold for the amusement of children. We should learn the lesson that changed this—"Black is beautiful." Age is beautiful, too. On the set of one of her last movies, the Italian actress Anna Magnani said, "I will not wear make-up. I earned the lines on my face and I'm proud of every one of them." To the statement "My dear, you don't look 40!" Gloria Steinem responded, "My dear, this is what 40 looks like!"

We need to be sure that our youngest doctors know that healthful years at the end of a life span are fun, inspiring, adventuresome, comfortable, and down-right delicious. Time is the only and most irreplaceable possession we all have. It is the very reason we seek doctors.

Continuing Medical Education

December 8

Managing End-of-Life Care

Place: Greenville

Credit: 3 hours Category 1, AMA

Info: Office of CME, ECU School of Medicine,

919/816-5208

December 8-9

Transvaginal Sonography

Place: Charleston, SC

Info: Office of CME, Bowman Gray School of Medicine,

910/716-4450

January 5-6

ACLS Retraining Course

Place: Rex Hospital, Raleigh

Credit: 8 hours, AAFP

Fee: \$75

Info: Iris Ahlheit, RN, Rex Hospital, 4420 Lake Boone

Trail, Raleigh, NC 27607, 919/783-3161

January 9-10 (March 13-14, April 10-11)

Mammography Mini-fellowship

Place: Winston-Salem

Credit: 16 hours Category 1, AMA

Info: Office of CME, Bowman Gray School of Medicine,

910/716-4450

January 16-20

Skills Course for Physician Office Laboratories

Place: Winston-Salem

Credit: 24 hours Category 1, AMA

Info: Office of CME, Bowman Gray School of Medicine,

910/716-4450

January 19-20

Challenges in Geriatric Practice

Place: Friday Center, UNC-Chapel Hill
Credit: approx. 16 hours Category 1, AMA
Fee: \$150; Thursday or Friday only, \$100

Info: Registrar, UNC Office of CME, CB# 7000,

231 MacNider Bldg., Chapel Hill, NC 27599-7000.

919/962-2118, fax: 919/962-1664

January 21-28

Winter Radiology

Place: TBA

Info: Office of CME, Bowman Gray School of Medicine,

910/716-4450

January 27

Neurology for the Primary Care Practitioner

Place: Greenville

Credit: 7 hours Category 1, AMA

Info: Office of CME, ECU School of Medicine,

919/816-5208

February 17-18

Clinical Grand Rounds: Department of Ophthalmology

Place: Wake Forest University Eye Center, Winston-Salem

Credit: 5.5 hours Category 1, AMA Info: Mary Kirk Huske, 910/716-3971

February 24

Rafael C. Sanchez Family Medicine Annual Update

Place: Greenville

Credit: 7 hours Category 1, AMA

Info: Office of CME, ECU School of Medicine,

919/816-5208

February 25

State of the Art Urology

Place: Winston-Salem

Credit: 7.5 hours Category 1, AMA

Info: Office of CME, Bowman Gray School of Medicine,

910/716-4450

February 27-March 2

Alton D. Brashear Postgraduate Course

in Head and Neck Anatomy

Place: Virginia Commonwealth University,

School of Medicine, Richmond, VA

Credit: 44 hours Category 1, AMA Fee: \$400 physicians, \$250 residents

Info: Hugo R. Seibel, MD, Dept. of Anatomy,

P.O. Box 980709, Medical College of Virginia,

VA Commonwealth University, Richmond, VA 23298-0709, 804/828-9623, fax: 804/828-9477

March 2

Urology Conference Place: Chapel Hill

Info: UNC Office of CME, 919/962-2118

March 2-3

Vannevar Bush II: Science for the 21st Century

Place: Sheraton Imperial Hotel, Research Triangle Park Info: Dee Windley, Sigma Xi, P.O. Box 13975, RTP 27709,

800/243-6534, fax: 919/549-0090

March 3-4

Aphasia: Current Clinical Challenges

Place: Durham

Info: Office of CME, Duke University, 919/684-6485

March 3-4

Neurology for the Non-Neurologist

Place: Winston-Salem

Credit: 9 hours Category 1, AMA

Info: Office of CME, Bowman Gray School of Medicine,

910/716-4450

March 10

A Community Policy or Medical Futility?:

A Conversation of the NC Community

Place: Durham

Info: Office of CME, Duke University, 919/684-6485

March 16-19

NC Medical Society Leadership Conference

Place: Pinehurst

Info: Alan Skipper, 800/722-1350 or 919/833-3836

March 23-25

Physician's Office Laboratory Symposium

Place: Winston-Salem

Credit: 20 hours Category 1, AMA

Info: Office of CME, Bowman Gray School of Medicine,

910/716-4450

March 24

American Medical Writers Association Workshops: Statistics for Medical Writers and Editors, Tables and Graphs, Writing and Producing Materials for Patient Education, and

Sentence Structure and Patterns

Place: Glaxo, Inc., 1008 Crown South, Imperial Center,

Swabia Court, Research Triangle Park

Credit: applicable toward AMWA Core Curriculum

certificate

Fee: AMWA members: \$65 for one/\$115 for two:

non-members: \$75 for one/\$135 for two

(registration deadline: Feb. 3)

Info: Joan Rivers, 910/270-9786

March 24

Rehabilitation Symposium

Place: Greenville

Credit: 7 hours Category 1, AMA

Info: Office of CME, ECU School of Medicine,

919/816-5208

March 24-25

8th Annual Surgical Symposium & Hightower Lecture

Place: Winston-Salem

Credit: 8 hours Category 1, AMA

Info: Office of CME, Bowman Gray School of Medicine,

910/716-4450

March 31

Pediatrics Day

Place: Greenville

Credit: 6.5 hours Category 1, AMA

Info: Office of CME, ECU School of Medicine,

919/816-5208

April 5-8

19th Annual Internal Medicine Conference

Place: Friday Center, UNC-Chapel Hill Credit: approx. 25 hours, Category 1, AMA

Fee: \$350

Info: Registrar, UNC Office of CME, CB# 7000,

231 MacNider Bldg., Chapel Hill, NC 27599-7000,

919/962-2118, fax: 919/962-1664

April 7-8

Practical Pediatrics

Place: Winston-Salem

Credit: 8 hours Category 1, AMA

Info: Office of CME, Bowman Gray School of Medicine,

910/716-4450

April 20-21

19th Annual Symposium of the

UNC Lineberger Comprehensive Cancer Center "Signalling Pathways in Development and Cancer"

Place: Lineberger Cancer Center

Info: Sarah Rimmer, UNC School of Medicine,

CB# 7295, Chapel Hill, NC 27599-7295,

919/966-3036, fax: 919/966-3015

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Aphorisms of the Month

Daniel J. Sexton, MD, Editor

"On Teaching and Learning"*

What one fool can do, another can.

—Ancient Simian proverb

[A]nything that can be taught to another is relatively inconsequential and has little or no significant influence on behavior....I have come to feel that the only learning which significantly influences behavior is self-discovered, self-appropriated learning.

—Carl Rogers

"Those who can, do. Those who can't, teach." A hostile comment to be sure, but one which for some reason is very popular among doers. Try substituting the word "learn" for the word "teach"....[The] comment no longer makes sense. I wonder why? Maybe....[it] says something about the relative importance of teaching and learning.

—Jerry B. Harvey

The effectiveness of the teacher must be judged by the things that happen after the student and teacher part company. The immediate communication between student and teacher is usually of more benefit to the teacher than the student...the student forgets the material unless the contact causes him to undertake intellectual work he would not have done without the student-teacher interaction.

—Eugene A. Stead, Jr.

The explanation for the negative correlation between the amount learned from an instructor and the students' evaluation of his teaching performance is not obvious...perhaps students resent instructors who force them to work too hard and to learn more than they wish.

-Miriam Rodin and Burton Rodin

Well, my art of midwifery...differs in that I attend men and not women, and I look after their souls when they are in labour, and not their bodies...[L]ike the midwives, I am barren, and the reproach which is often made of me, that I ask questions of others and have not the wit to answer them myself, is very just.

—Socrates

[T]o educate the eye to see, the ear to hear and the finger to feel takes time, and to make a beginning, to start a man on the right path, is all that we can do. We expect too much of the student and we try to teach him too much. Give him good methods and a proper point of view, and all other things will be added.

—William Osler

Nothing in education is so astonishing as the amount of ignorance it accumulates in the form of inert facts.

—Henry Adams

*Contributed by Francis A. Neelon, MD, Journal Editor

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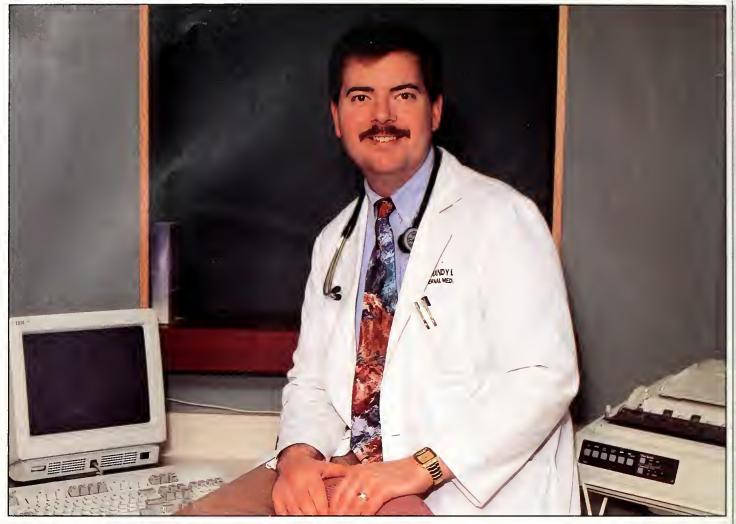
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